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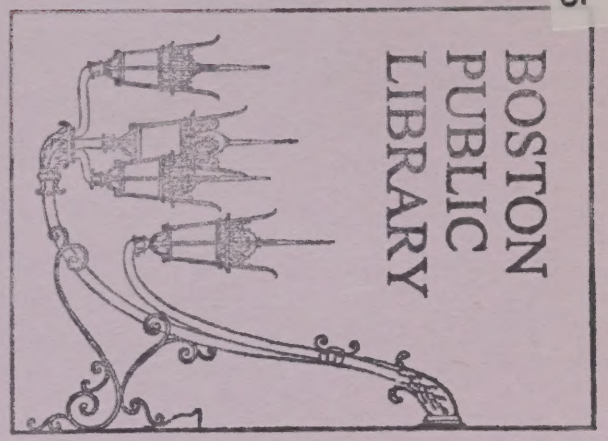

A REVIEW OF 1998 BIRTH DATA

Prepared by the Boston Public Health Commission
David Mulligan, Chair
John Auerbach, Executive Director

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BOSTON NATALITY 2000

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A Review of 1998 Birth Data
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Boston, Massachusetts
2000

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HOW TO READ AND USE THIS REPORT

What is the purpose of this report?
This report is produced annually to provide the mayor, city administrators, city councilors and the Boston Public Health Commission (BPHC) board, the BPHC executive office, and the public with an overview of issues related to Boston births. It offers a basis for identifying community needs for the purpose of making public policy and is meant to be a resource for discussion at the national, state, and local levels.

How is it organized?
Boston Natality 2000: A Report on the Health of Mothers and Infants includes several new indicators related to weight gain during pregnancy, smoking during pregnancy, maternal birthplace, maternal language preference, and educational attainment. *Boston Natality 2000* serves as a supplement to the more comprehensive *Natality 1999*, published in June 2000, which provided background information and state and national data through 1997.

What time period does the report cover?
Generally, the most recent data available for this report is 1998, and the time period presented for trends is 1991 through 1998. See Technical Notes at the back of the report for details.

What population base does the report use?
All Boston pregnancy-related rates were calculated using the Boston population as listed in the 1990 US census. National or state rates provided by agencies other than the BPHC Research and Technology Services may be based on sources other than the 1990 US census. The Technical Notes provide more explanation of population sources.

What do the statistics mean?
The data are presented using percentages and age-specific and infant mortality rates. The Technical Notes provide explanations of the rates presented, how they are used, and how they are calculated.

What racial and ethnic groups are included in the report, and how are they defined?
Readers of this report should keep in mind that racial and ethnic designations are social conventions, not biological categories. See Racial and Ethnic Designations in Technical Notes for a more complete discussion.

Boston has a diverse population, but the health care field does not collect and provide detailed data on every racial and ethnic group. Data sources generally use only a few major categories for the presentation of health-related data by race and ethnicity, such as White, Black, Asian/Pacific Islander, Hispanic, and Other/Unknown. *Boston Natality 2000: A Report on the Health of Mothers and Infants* presents Boston-specific data for non-Hispanic Whites, non-Hispanic Blacks, Asian/Pacific Islanders, and Hispanics. See Technical Notes at the back of this report for a more complete discussion.

Boston Natality 2000:
A Report on the Health
Of Mothers and Infants

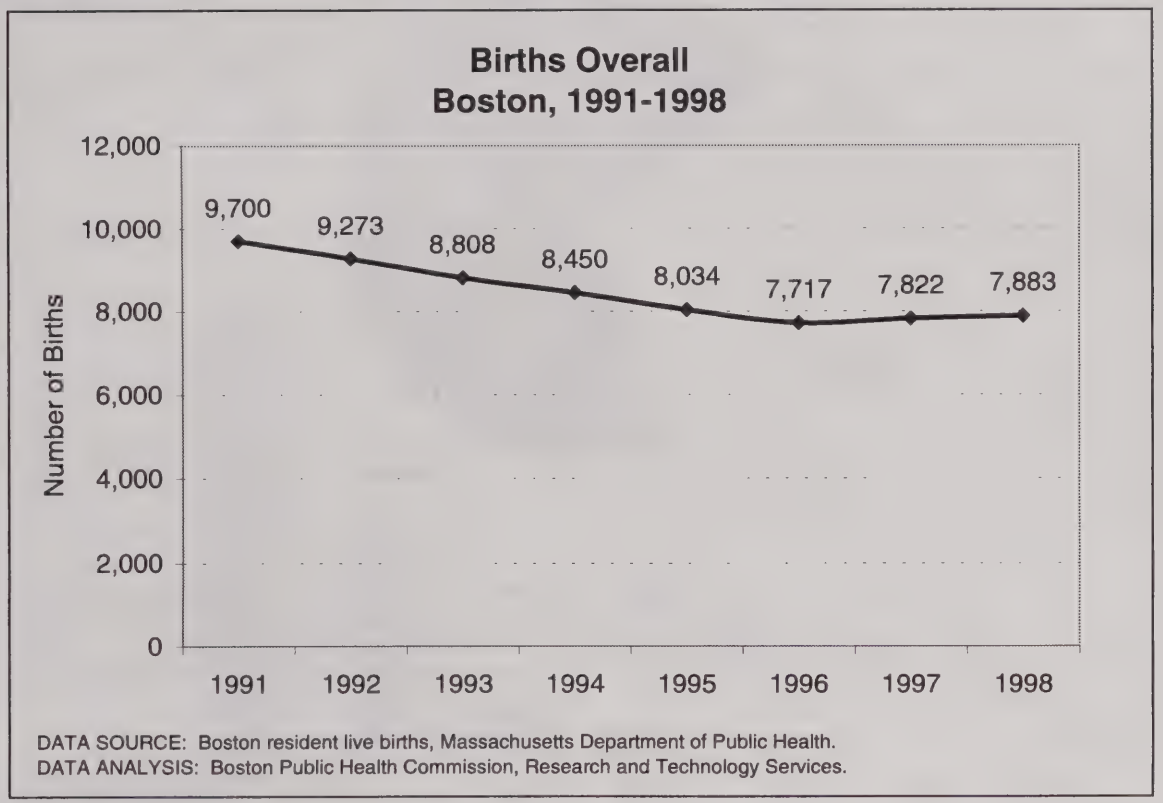
Highlights

- The total number of Boston resident live births in 1998 was 7,883, up slightly from 7,822 in 1997.
- One-third (31.7%) of Boston births in 1998 were to Black women; one-third (35.2%) were to White women; 22.4% were to Hispanic women; 6.5% were to Asian women, and 4.3% were to women of another or unknown race/ethnicity.
- About one-quarter of Boston births were to women whose primary language was other than English.
- Approximately eleven percent of births to Boston residents in 1998 were to mothers under age 20; 16.8% were to women over age 35.
- A substantial proportion (43.9%) of births to Boston residents in 1998 were to women born outside the United States, including the US territories of Puerto Rico and the Virgin Islands.
- Only 8.1% of Boston women who gave birth in 1998 reported smoking during pregnancy, a lower percentage than in previous years. The overall decline in smoking during pregnancy by Boston women between 1991 and 1998 totals 52.4%.
  - In 1998, White women were more likely to smoke during pregnancy (11.9%) than Black women (8.3%), Hispanic women (4.0%), or Asian women (1.4%).
  - Women born in the United States were more likely to smoke during pregnancy (12.7%) than women born elsewhere: 6.5% of women born in Puerto Rico and 2.2% of women born in other countries reported smoking during pregnancy.
  - Boston women ages 18-19 were more likely to smoke during pregnancy than women of any other age group.
  - Smoking during pregnancy was most common in South Boston (18.0% of South Boston women giving birth) and least common in Jamaica Plain (2.6% of Jamaica Plain women giving birth).
  - In 1998, 12.8% of smokers had a low birthweight birth, compared with 8.5% of nonsmokers.
- In 1998, more White women (84.7%) received adequate prenatal care than Black women (70.2%), Hispanic women (76.0%), Asian women (74.2%) or women of other race/ethnicity groups (58.3%).
- Women born in the Dominican Republic had the highest rate of adequate prenatal care (86.2%), followed by women born in the Virgin Islands (80.0%), the United States (79.4%), and Puerto Rico (78.8%). The lowest rates of adequate prenatal care were among women born in El Salvador (52.1%), Haiti (62.8%), and Vietnam (67.4%).

- Unlike Massachusetts as a whole, Boston has not experienced a significant increase in multiple births (twins, triplets, and higher-order births). Only 3.5% of Boston births in 1998 were multiple births.
- Low birthweight (LBW) declined among Boston births in 1998, falling from 9.2% in 1997 to 8.8% in 1998.
- In 1998, Black Boston residents had a higher rate of low birthweight (12.5%) than did White women (6.4%), Hispanic women (8.1%), Asian women (7.5%), or women of other race/ethnicity groups (6.3%).
- Boston women born in the Virgin Islands had the highest rate of LBW in 1998 (15.0%), and Boston women born in the Dominican Republic had the lowest rate (6.2%). Women born in the United States had an intermediate rate of 9.9%.
- LBW was most common in Roxbury (13.7% of Roxbury births), and least common in Charlestown (5.3% of Charlestown births).
- Fifty Boston infants died in 1998, an infant mortality rate (IMR) of 6.3 deaths per 1,000 live births. The IMR was 25.0% lower than the rate in 1997 and the lowest rate in eight years.
- Almost three-fourths (73.9%) of Boston infant deaths for which the age at death was known occurred during the first four weeks of life.
- In 1998, Black Boston infants were more than twice as likely to die during the first year of life as White or Hispanic infants, with an IMR of 10.4 per 1,000 live births, compared with an IMR of 4.0 for White infants and 4.5 for Hispanic infants.

BIRTHS

Trends



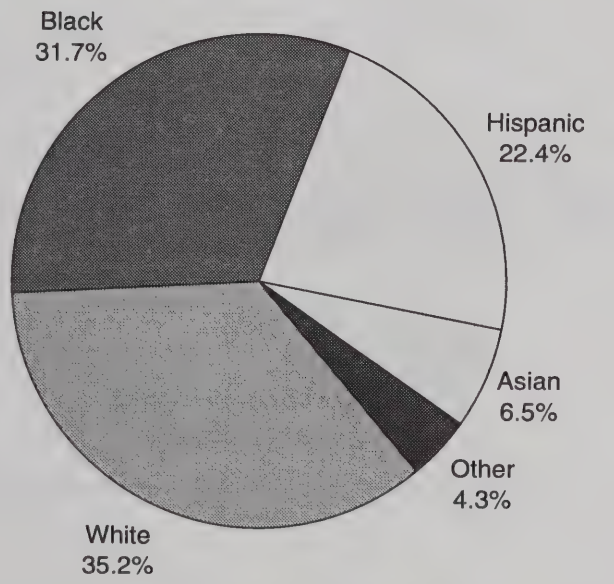
DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- Boston had a total of 7,883 live births in 1998, an increase of slightly under one percent compared with the 1997 total of 7,822 live births.
- This is the second year in a row in which the number of live births to Boston residents has increased.
- However, between 1991 and 1998, births have decreased by 18.7%, from 9,700 births in 1991 to 7,883 in 1998.

BIRTHS

Race/Ethnicity

Births by Race/Ethnicity
Boston, 1998



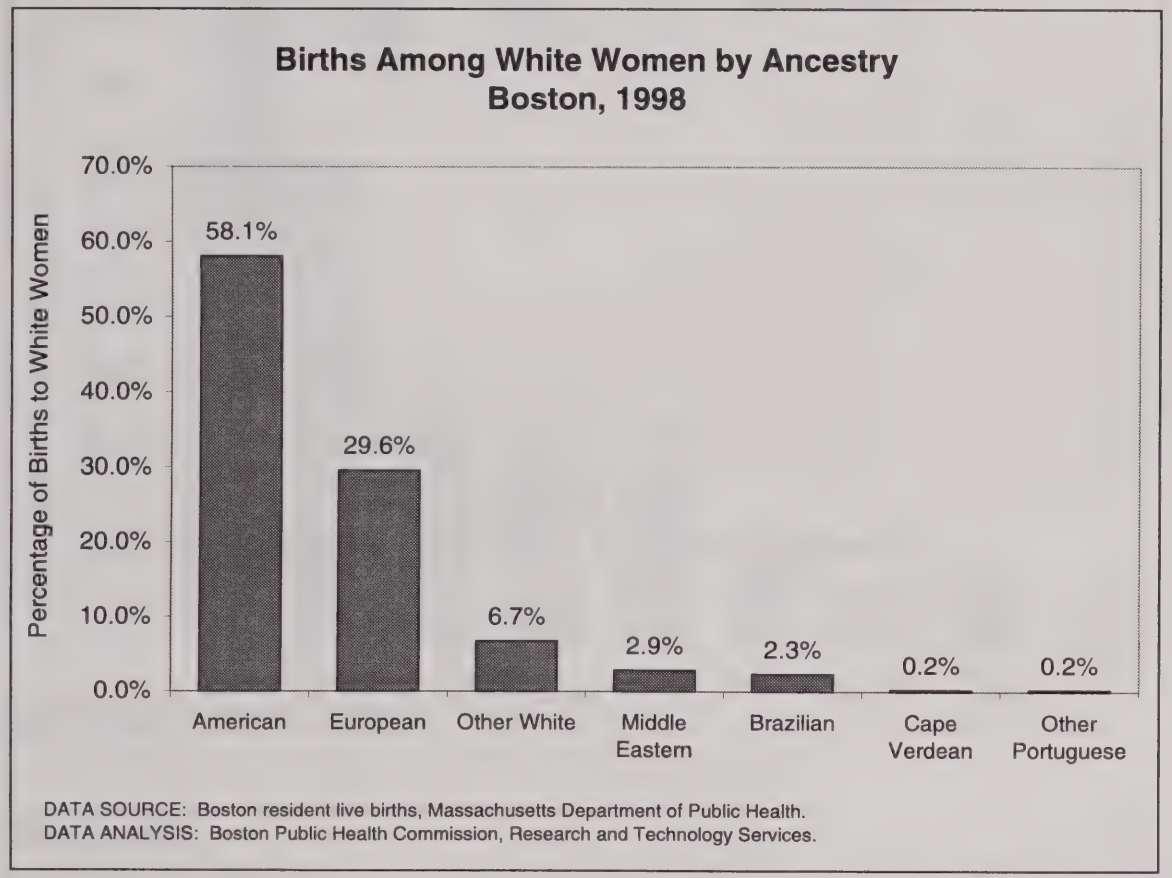
DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- In 1998, 2,764 Boston births were to White women, 2,493 were to Black women, 1,761 were to Hispanic women, 508 were to Asian women, 335 were to women of other race/ethnicity, and 22 were to women who did not identify their race/ethnicity.
- The percentage of births that were to White women rose from 33.7% in 1997 to 35.2% in 1998, an increase of 4.5%. The percentage of births that were to Black women fell slightly between the two years, from 32.0% to 31.7%, a decrease of less than one percent. Births to Hispanic women increased by 5.7%, from 21.2% of all births in 1997 to 22.4% in 1998. Births to Asian women declined by 19.8%, from 8.1% of all births in 1997 to 6.5% in 1998.

BIRTHS

Maternal Ancestry

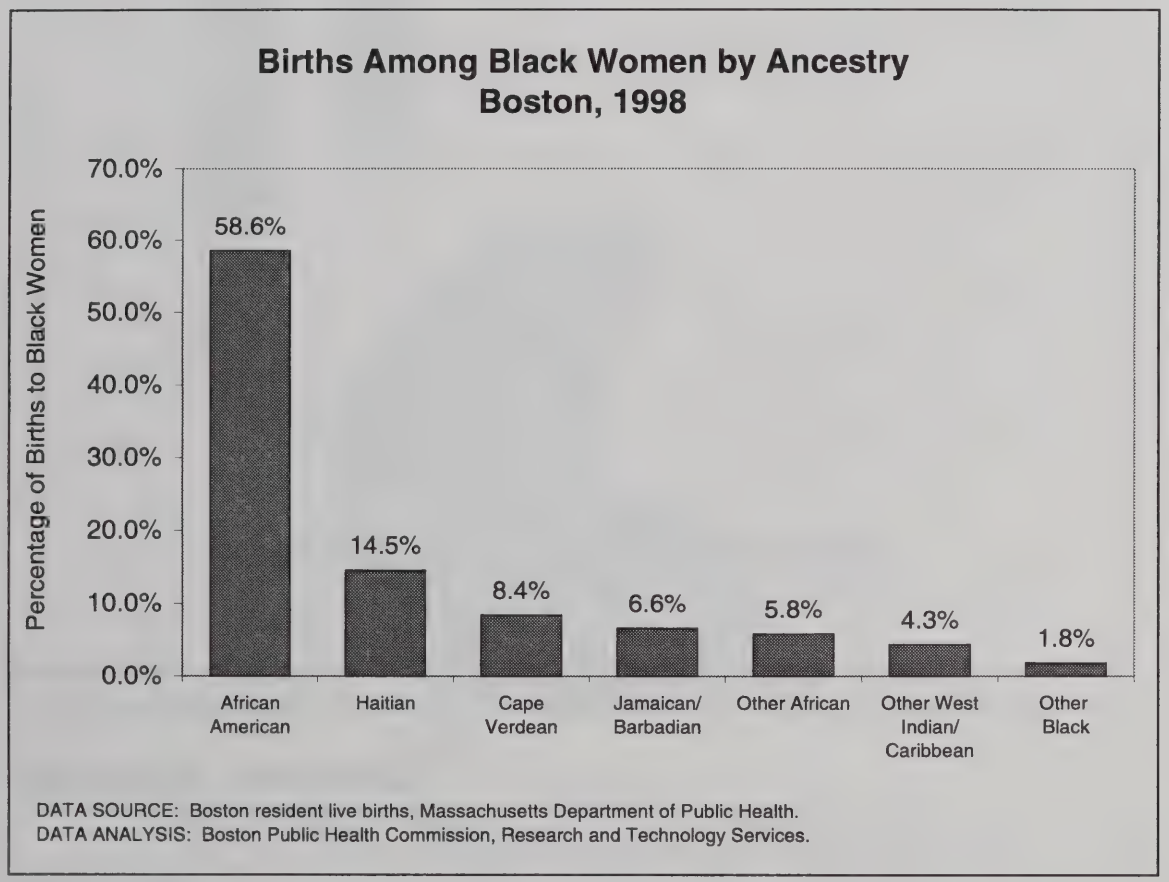
The major race/ethnicity groupings shown in this and the following three charts are based on women's self-reported race and whether or not they consider themselves to be of Hispanic or Latino origin. Detailed ancestry information is described in this section.



- In 1998, the majority of births to White women were among those who identified their ancestry as "American" (58.1%).
- Other White Boston residents who gave birth in 1998 identified their ancestry as European (29.6%), Other White (6.7%), Middle Eastern (2.9%), or Brazilian (2.3%).
- Less than one percent (0.4%) of White women did not provide information on their ancestry.

BIRTHS

Maternal Ancestry

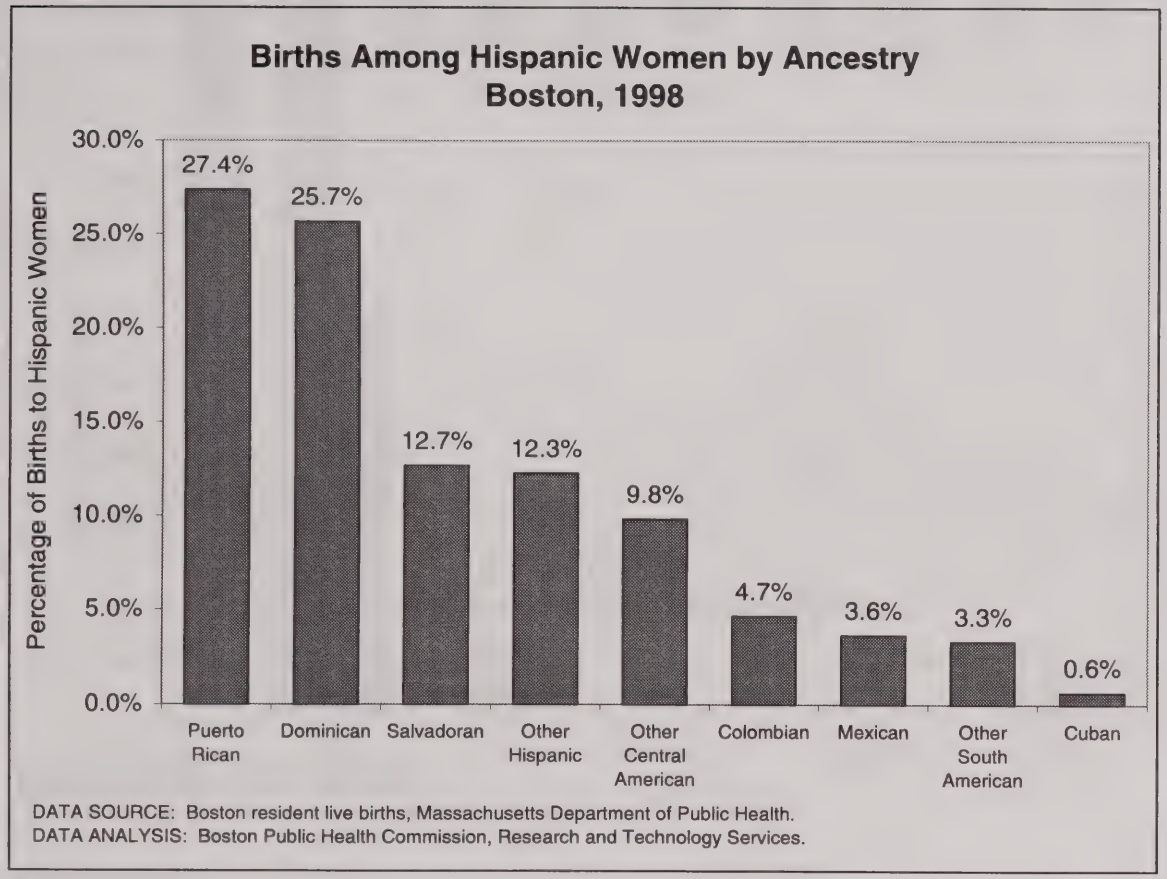


DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- Among births to Black women, the majority of births were to women who identified themselves as African-American, with Haitian and Cape Verdean being the next most common ancestries indicated.
- Other ancestries represented smaller proportions of Black births.

BIRTHS

Maternal Ancestry

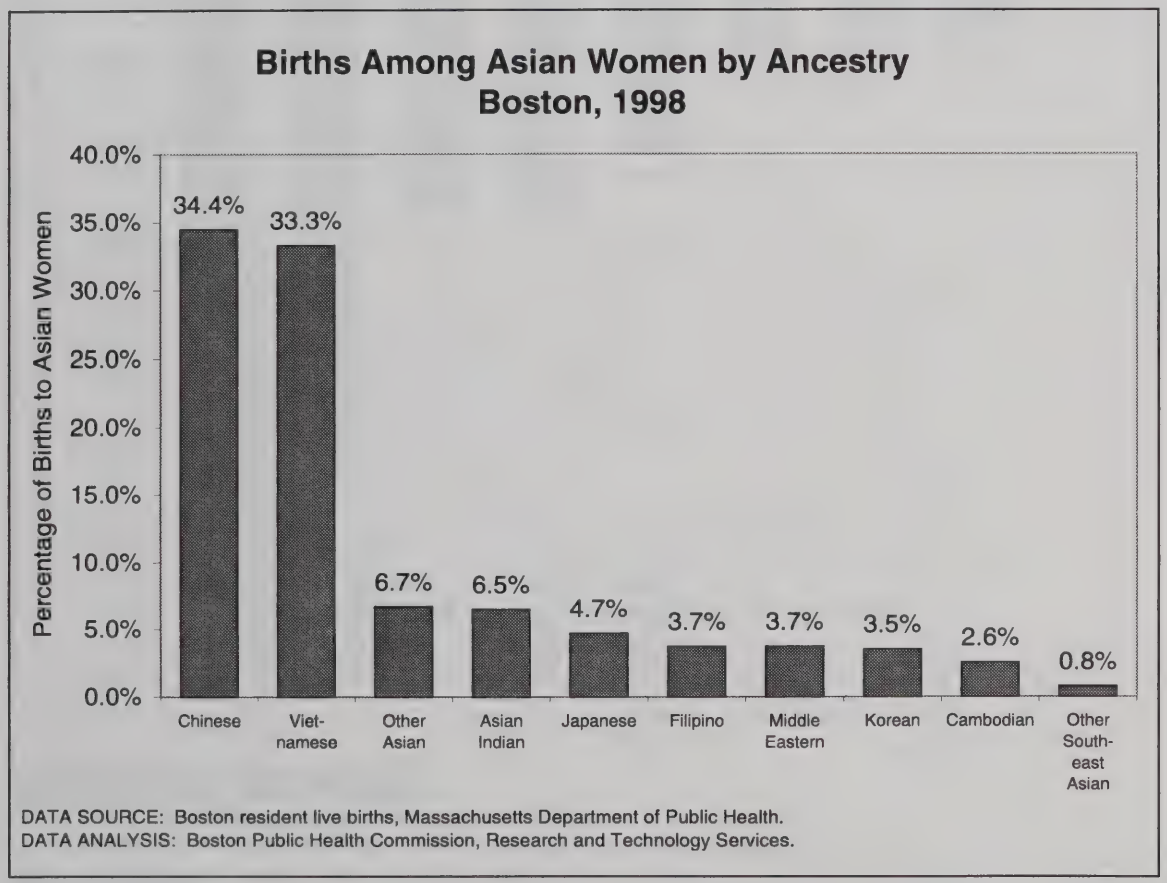


- In 1998, among Hispanic women, over a quarter of births were to women of Puerto Rican ancestry, one in four were to women of Dominican ancestry, an eighth were to women of Salvadoran ancestry, and slightly less were to Other Hispanic women.

- Smaller percentages of births were to Hispanic women of other ancestries: Other Central American, Colombian, Mexican, Other South American, and Cuban.

BIRTHS

Maternal Ancestry

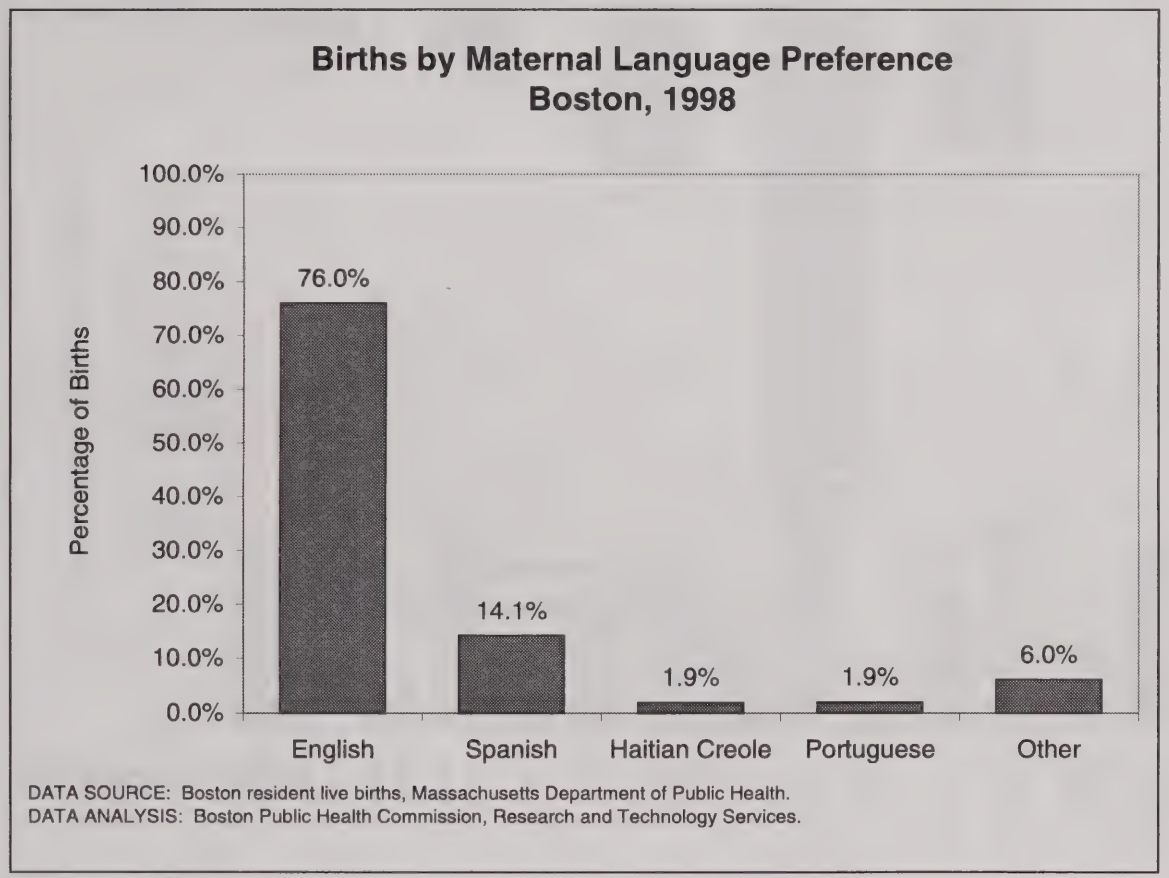


DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- The largest percentages of births to Asian women were to women of Chinese ancestry (34.4%) and those of Vietnamese ancestry (33.3%).
- Other ancestries specified by Asian women who gave birth in 1998 were Other Asian (6.7%), Asian Indian (6.5%), Japanese (4.7%), Filipino (3.7%), Middle Eastern (3.7%), Korean (3.5%), and Cambodian (2.6%).

BIRTHS

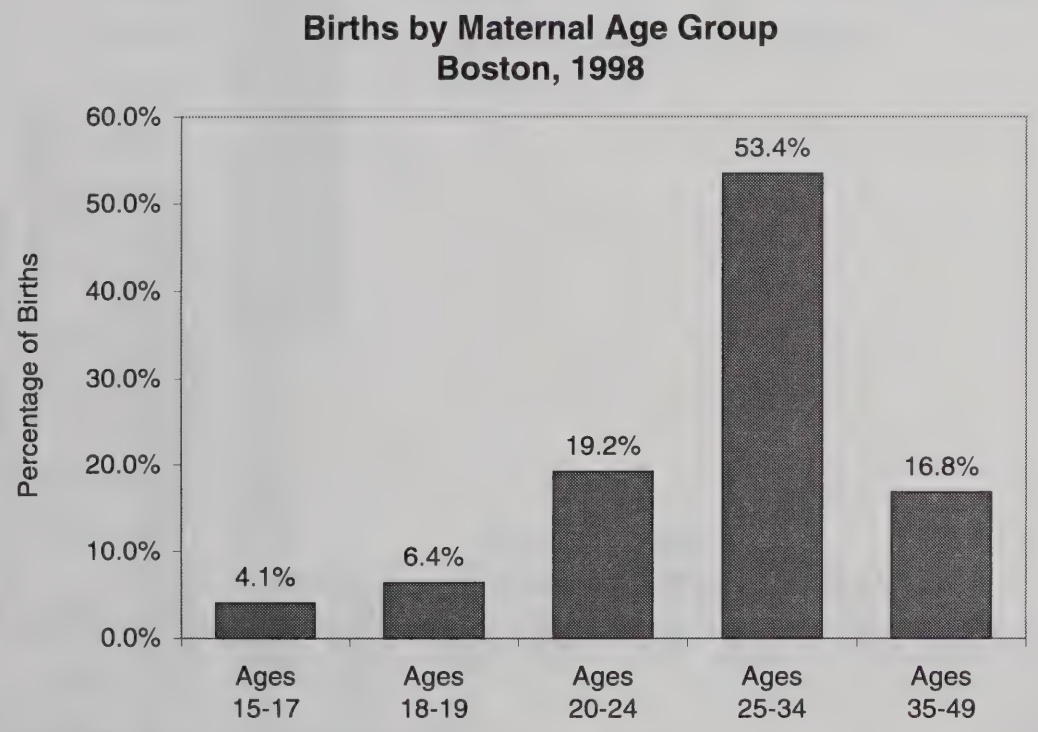
Language Preference



- In 1998, 5,980 Boston women reported English as their language of choice on the birth certificate.
- Spanish was the preferred language for 1,113 women.
- Haitian Creole, preferred by 149 women, and Portuguese, the language of choice of 150 women, were the next most common languages spoken by Boston women who gave birth in 1998.
- Other languages included American Sign, Arabic, Cambodian, Lao, Mandarin, Russian, and Vietnamese, each indicated by less than one percent of Boston women as their preferred language.

BIRTHS

Maternal Age

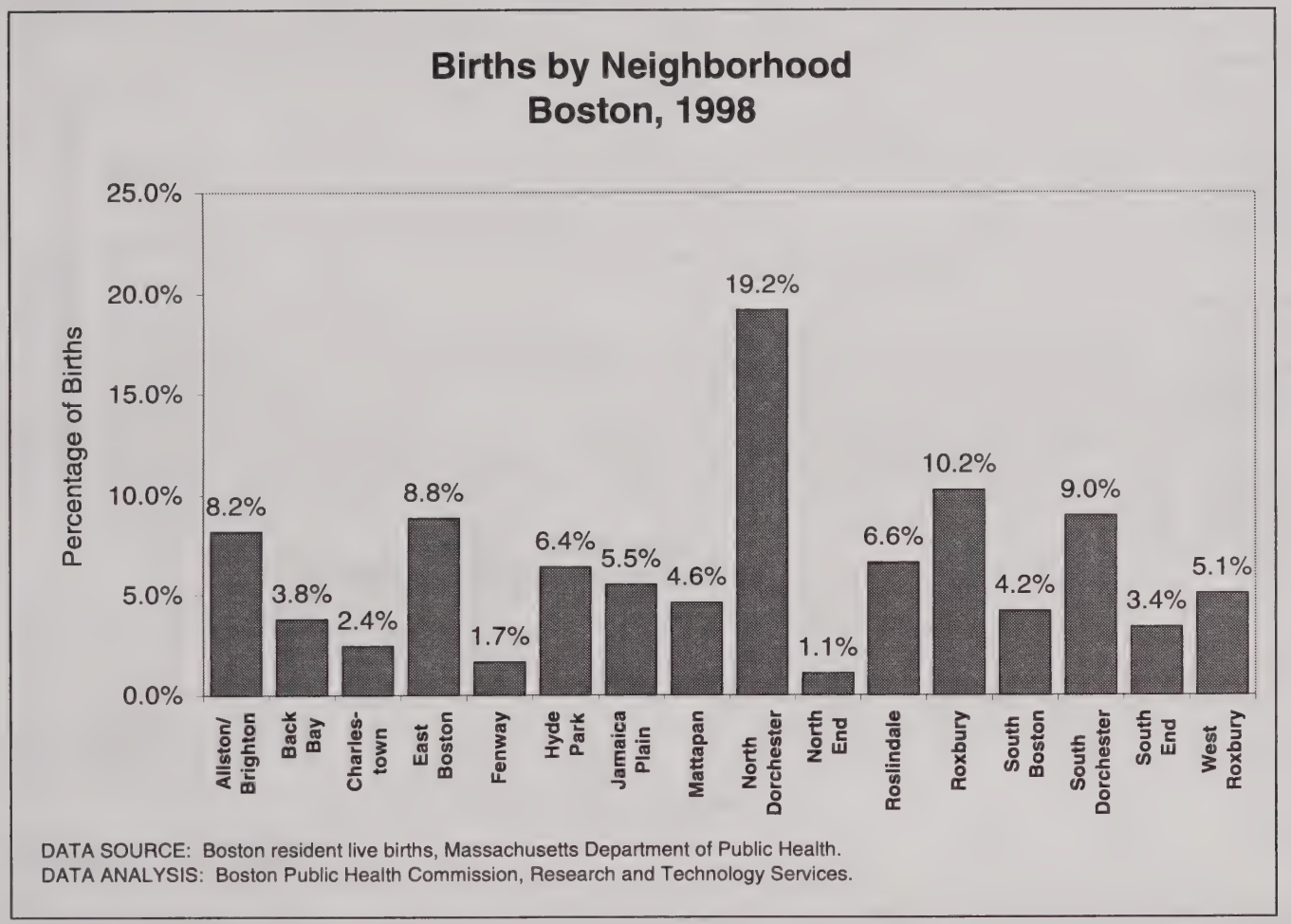


DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- In 1998, more than half of all births (4,210) occurred among women ages 25-34 years, and 836 births occurred among adolescents under age 20.
- Births to women ages 35-49 accounted for 1,323 births, and births to women ages 20-24 accounted for 1,514 births.
- Between 1991 and 1998, births to adolescents ages 15-17, as a percentage of all births, declined 10.9% and to adolescents ages 18-19 declined 3.0%; births to women ages 35-49, as a percentage of all births, increased 46.1%.

BIRTHS

Neighborhood



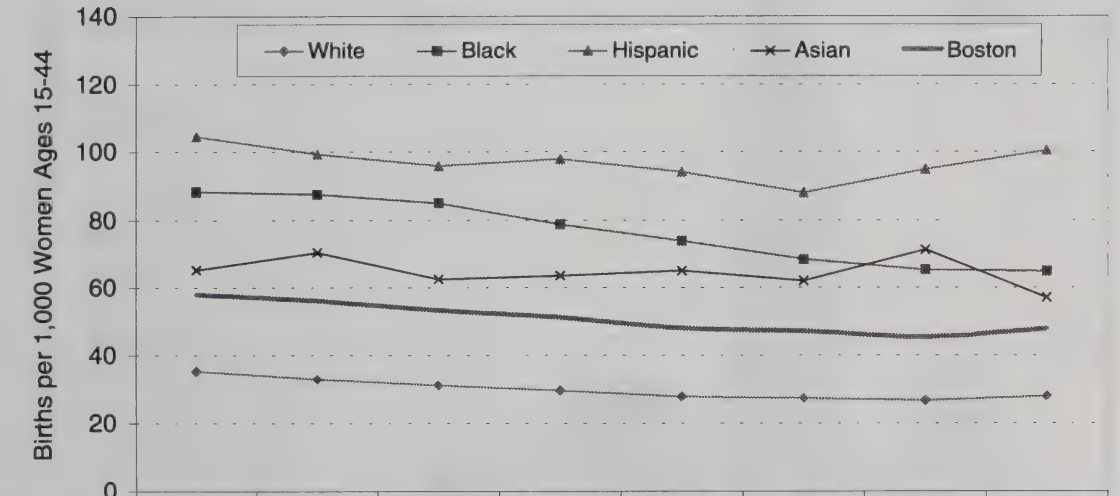
DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- Boston's largest neighborhood, North Dorchester, had the most births, 1,484, in 1998. Roxbury had the second-highest number, 792, and South Dorchester had 693. The neighborhoods with the fewest births in 1998 were the North End (83 births) and the Fenway (128 births).

BIRTH RATES

Race/Ethnicity

Birth Rates by Race/Ethnicity
Boston, 1991-1998



	1991	1992	1993	1994	1995	1996	1997	1998
White	35.3	32.9	31.1	29.6	27.8	27.3	26.6	27.9
Black	88.3	87.5	85.0	78.8	73.9	68.4	65.2	64.8
Hispanic	104.5	99.2	95.8	97.8	94.0	88.0	94.8	100.3
Asian	65.2	70.4	62.5	63.5	65.0	62.0	71.2	57.0
Boston	58.0	56.1	53.3	51.2	48.0	47.1	45.4	47.8

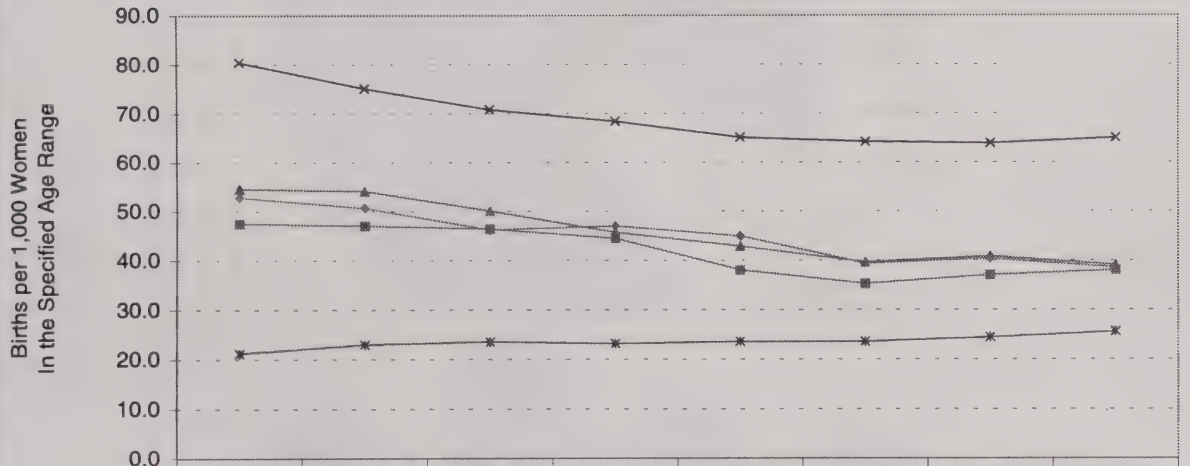
DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- Boston's birth rate (the number of births to women ages 15-44 per 1,000 women in that age range) was 47.8 in 1998.
- In each of the years 1991 through 1998, the birth rate for White women ages 15-44 was lower than the rates for women of all other racial and ethnic groups, and the rate decreased by 21.0% between 1991 and 1998.
- Between 1991 and 1998, Black women ages 15-44 had the largest decline in birth rates (26.6%) of all racial and ethnic groups.
- From 1991 through 1998, the birth rate for Hispanic women ages 15-44 was the highest of the rates for women of all racial and ethnic groups. The Hispanic birth rate decreased by 4.0% between 1991 and 1998.
- From 1991 through 1998, birth rates among Asian women ages 15-44 fluctuated yearly, but overall declined by 12.6% during that time period.

BIRTH RATES

Age-Specific Birth Rates

Age-Specific Birth Rates by Year
Boston, 1991-1998



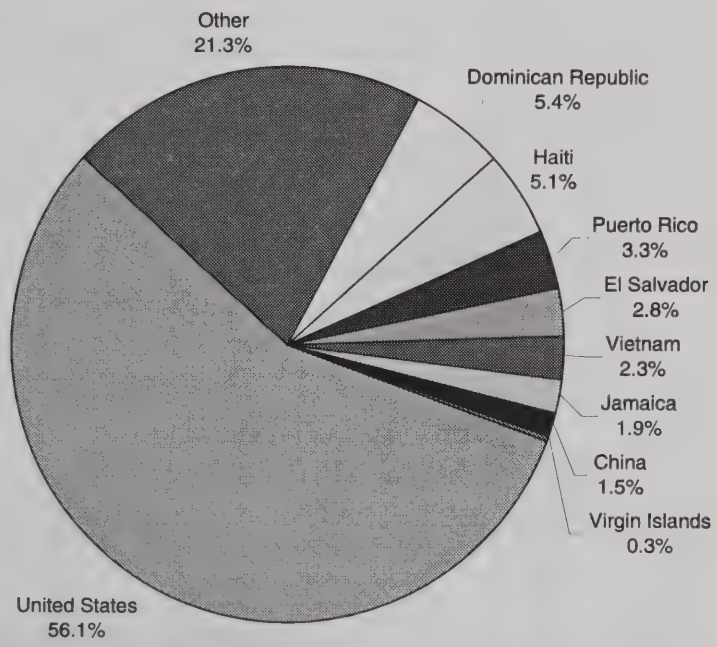
	1991	1992	1993	1994	1995	1996	1997	1998
Ages 15-17	52.8	50.7	46.2	46.9	44.9	39.4	40.3	38.5
Ages 18-19	47.5	47.0	46.4	44.4	38.0	35.2	37.0	38.0
Ages 20-24	54.6	54.1	50.1	45.7	42.8	39.6	40.8	39.0
Ages 25-34	80.4	75.1	70.8	68.4	65.1	64.2	63.9	65.0
Ages 35-49	21.2	22.9	23.5	23.2	23.5	23.6	24.4	25.6

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services

- In 1998, the birth rate to adolescents 15-19 years of age was 38.2 per 1,000 females in that age range. Women between the ages of 25 and 34 had the highest birth rate. The birth rate to women ages 20-24 was similar to the birth rate among adolescents. The lowest birth rate was among women ages 35-49.
- Between 1991 and 1998, the rate for adolescents ages 15-17 decreased by 27.1%. Birth rates for adolescents ages 18-19 increased slightly between 1997 and 1998 (2.7%) after declining each year between 1991 and 1997.
- From 1991 to 1998, birth rates for women ages 20-24 declined by 28.6%. The rate in 1991 was 54.6 per 1,000 women. Between 1997 and 1998, birth rates for women ages 25-34 increased slightly (1.7%), after a year-by-year decline from 1991 through 1997.
- Between 1991 and 1998, age-specific birth rates continued to increase for women ages 35-49. Between 1991 and 1998, birth rates for women in this age group increased by 20.6%. In 1991 their birth rate was 21.2 per 1,000 women.

MATERNAL CHARACTERISTICS

Maternal Birthplace

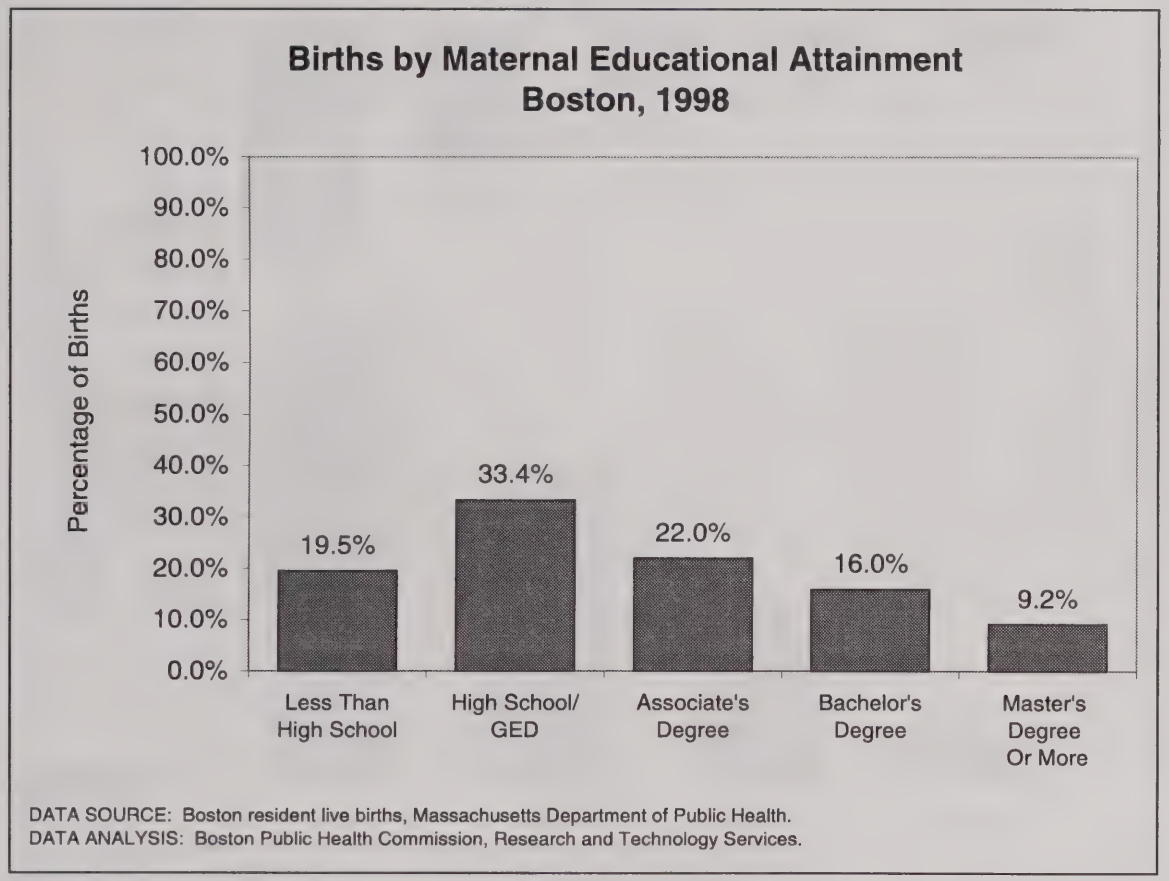


DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- Of the 7,883 births in 1998, 4,418 were to women born in the United States.
- Four hundred twenty-two births were to women born in the Dominican Republic, 405 were to women born in Haiti, and 261 were to women born in Puerto Rico.
- Other maternal countries of origin, representing between one and three percent of all Boston births, were El Salvador, Vietnam, Jamaica, China, and the Virgin Islands.
- Other countries, each with less than one percent of all births, collectively represent 21.3% of the total births.

MATERNAL CHARACTERISTICS

Educational Attainment

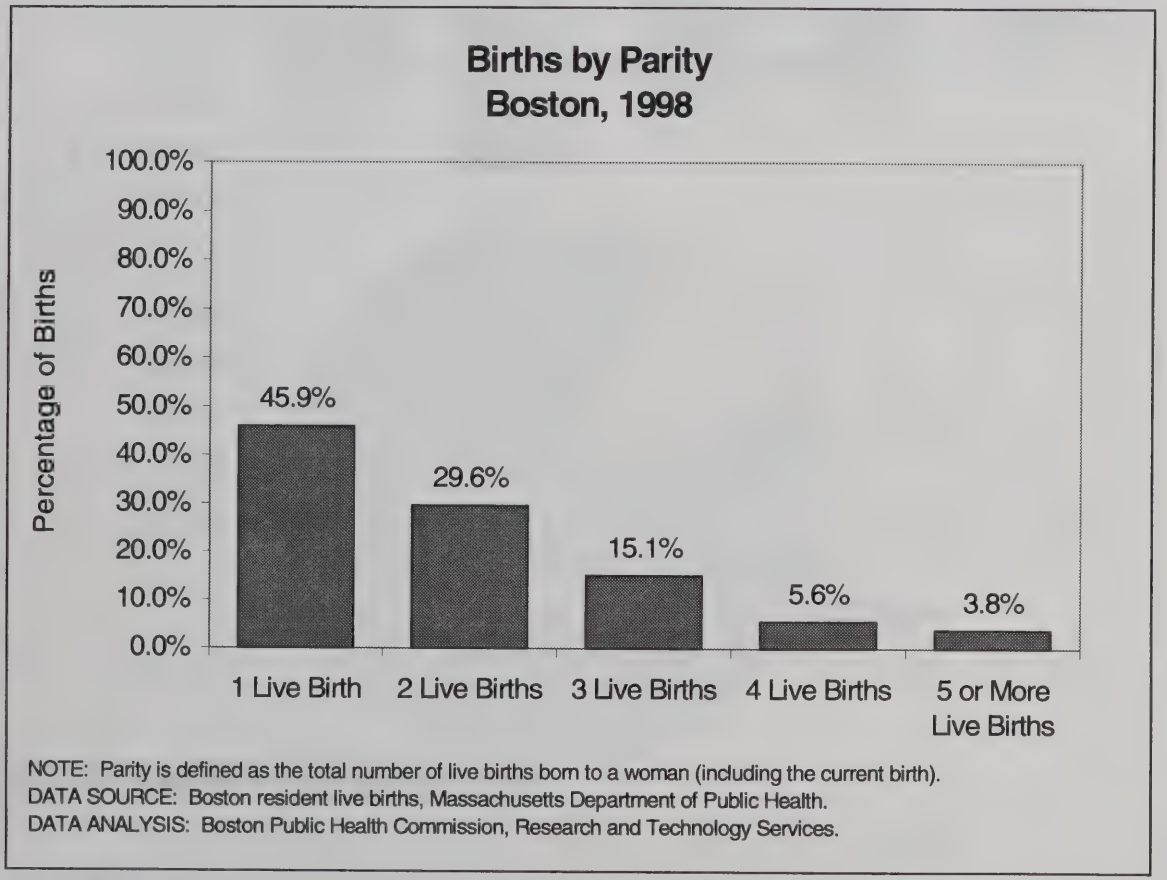


DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- One in five Boston births in 1998 (19.5%) were to women who had less than a high school education.
- Another third (33.4%) were to women who had a high school diploma or equivalent, and the remainder (47.2%) were to women with at least some college education.
- Since 1991, the percentage of births to women with less than a high school education has declined 29.0%; the percentage to women with a bachelor's degree has increased 32.2%, and with a master's degree or more, 24.3%. Percentages of births to women at other levels of educational attainment have remained largely unchanged.

MATERNAL CHARACTERISTICS

Parity



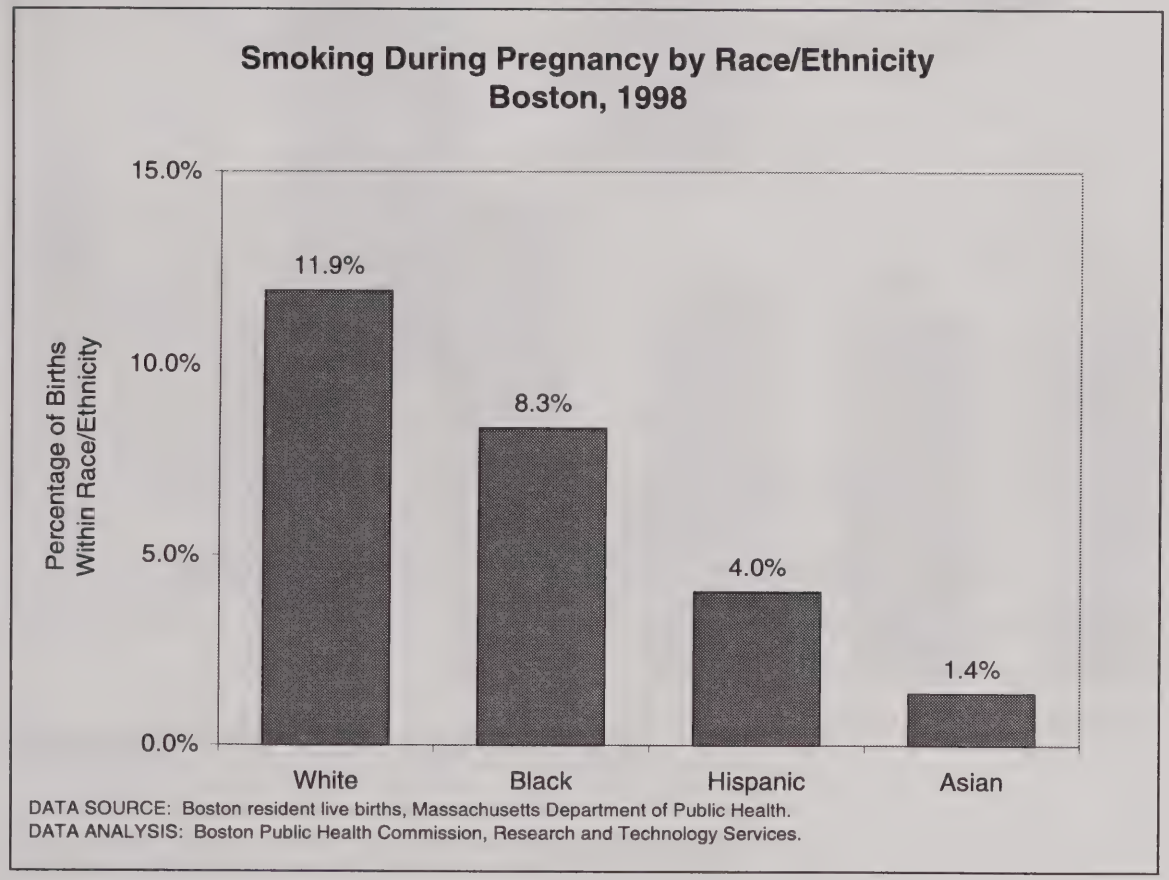
NOTE: Parity is defined as the total number of live births born to a woman (including the current birth).
DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- First births accounted for 45.9% of births to Boston residents in 1998.
- Approximately thirty percent (29.6%) were to women having their second child; 15.1% were third births; 5.6% were fourth births; and the rest (3.8%) were to women with five or more children in addition to the current birth.
- Over time, there have been small increases in women having their first or second births. Since 1991, the percentage of first births has increased 3.1%, and of second births, 4.6%. There have been somewhat larger decreases among higher-order births, the largest among fifth or higher-order births (22.4% decline).

MATERNAL CHARACTERISTICS

Smoking During Pregnancy

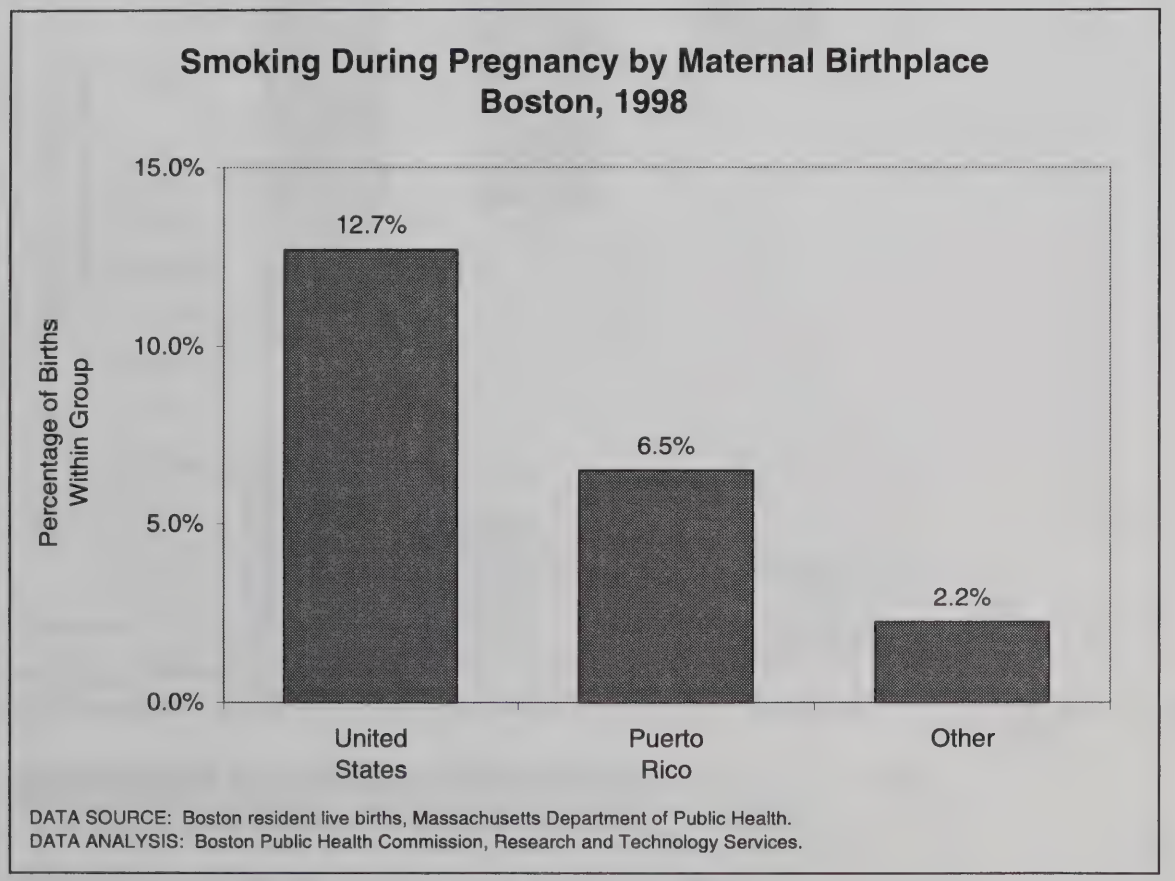
The percentage of Boston women who report smoking during pregnancy continues to decline. In 1991, 17.0% said they smoked during their pregnancy. By 1998, only 8.1% reported doing so, a 52.4% decline since 1991.



- In 1998, smoking during pregnancy was more frequently reported by White women than by women of other racial/ethnicity groups. The White rate was 43.4% higher than the rate for Black women, almost triple the rate for Hispanic women, and more than eight times the rate for Asian women.
- Between 1991 and 1998, smoking during pregnancy by White women declined by 53.0% (with a slight increase in 1998). Smoking during pregnancy by Black women declined by 48.1%.
- There were slight decreases between 1997 and 1998 in the percentage of Hispanic and Asian women who reported smoking while pregnant.

MATERNAL CHARACTERISTICS

Smoking During Pregnancy

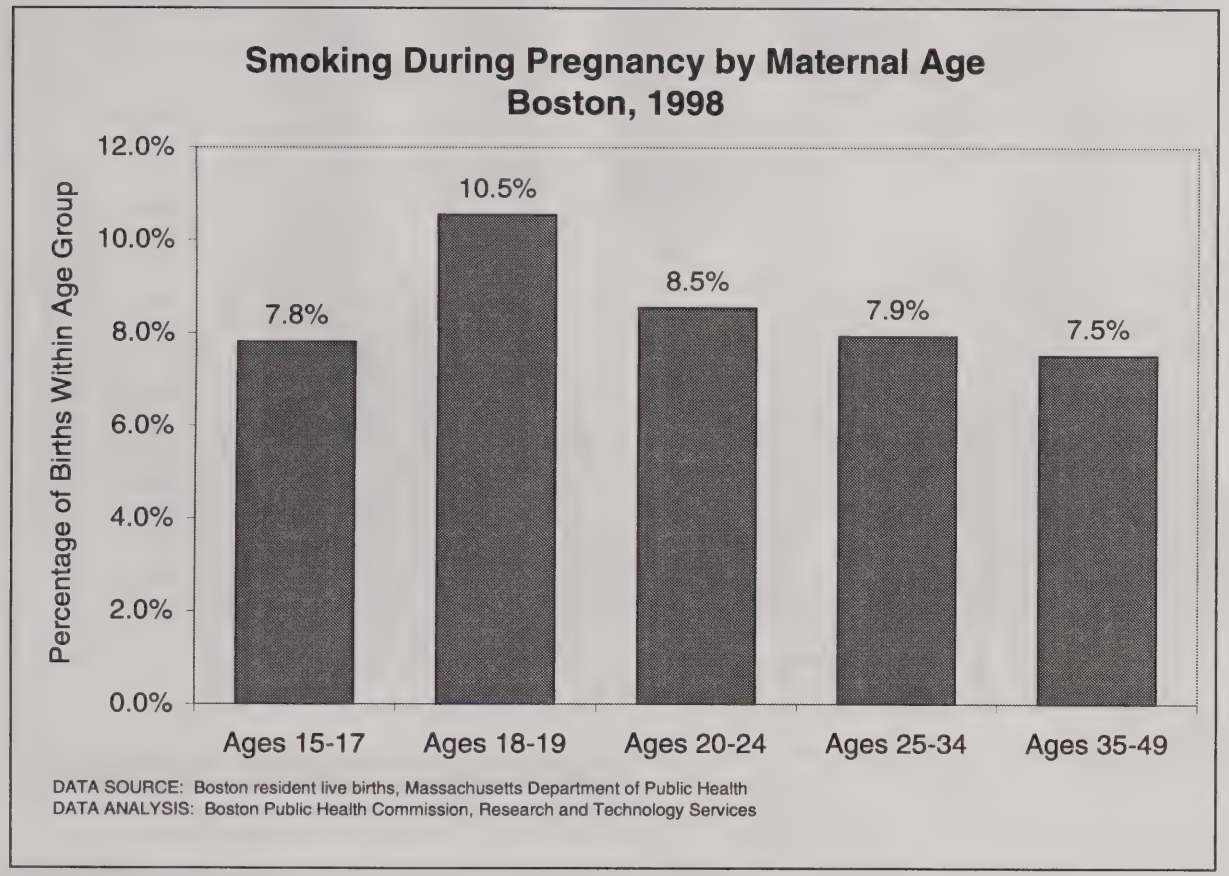


- Boston women born in the United States were far more likely to report smoking during pregnancy than Boston women born elsewhere. (For these purposes, the US comprises the fifty states only; US territories are considered separately.)

- Almost one in eight US-born women smoked while pregnant, compared with one in 15 women born in Puerto Rico and approximately two percent of women born in the following countries: China, Dominican Republic, El Salvador, Haiti, Jamaica, the Virgin Islands, and Vietnam.

MATERNAL CHARACTERISTICS

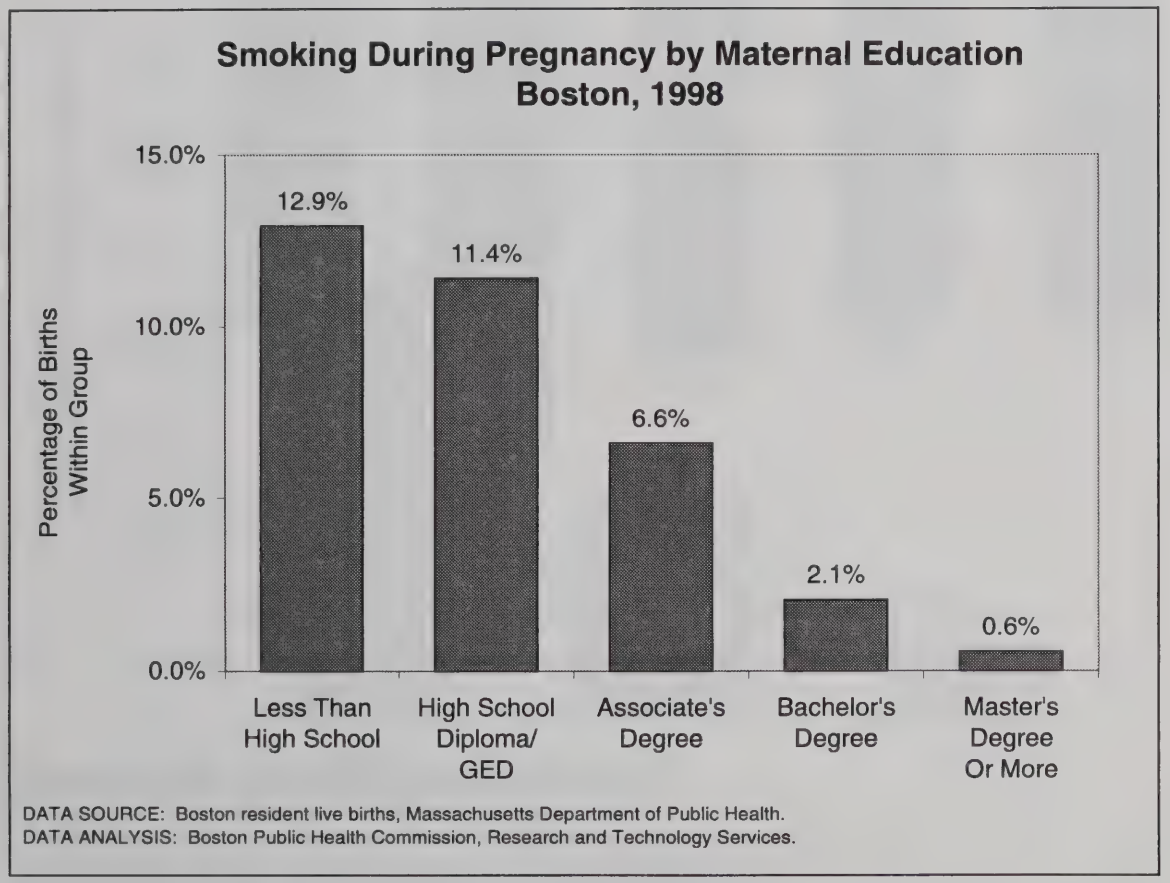
Smoking During Pregnancy



- During 1998, Boston residents most likely to smoke during pregnancy were those ages 18-19, followed by those ages 20-24, 25-34, and 15-17.
- Those least likely to smoke during pregnancy were those ages 35-49.
- Between 1991 and 1998, the percentage of all Boston births that were to women who reported smoking during pregnancy declined for all age groups.

MATERNAL CHARACTERISTICS

Smoking During Pregnancy

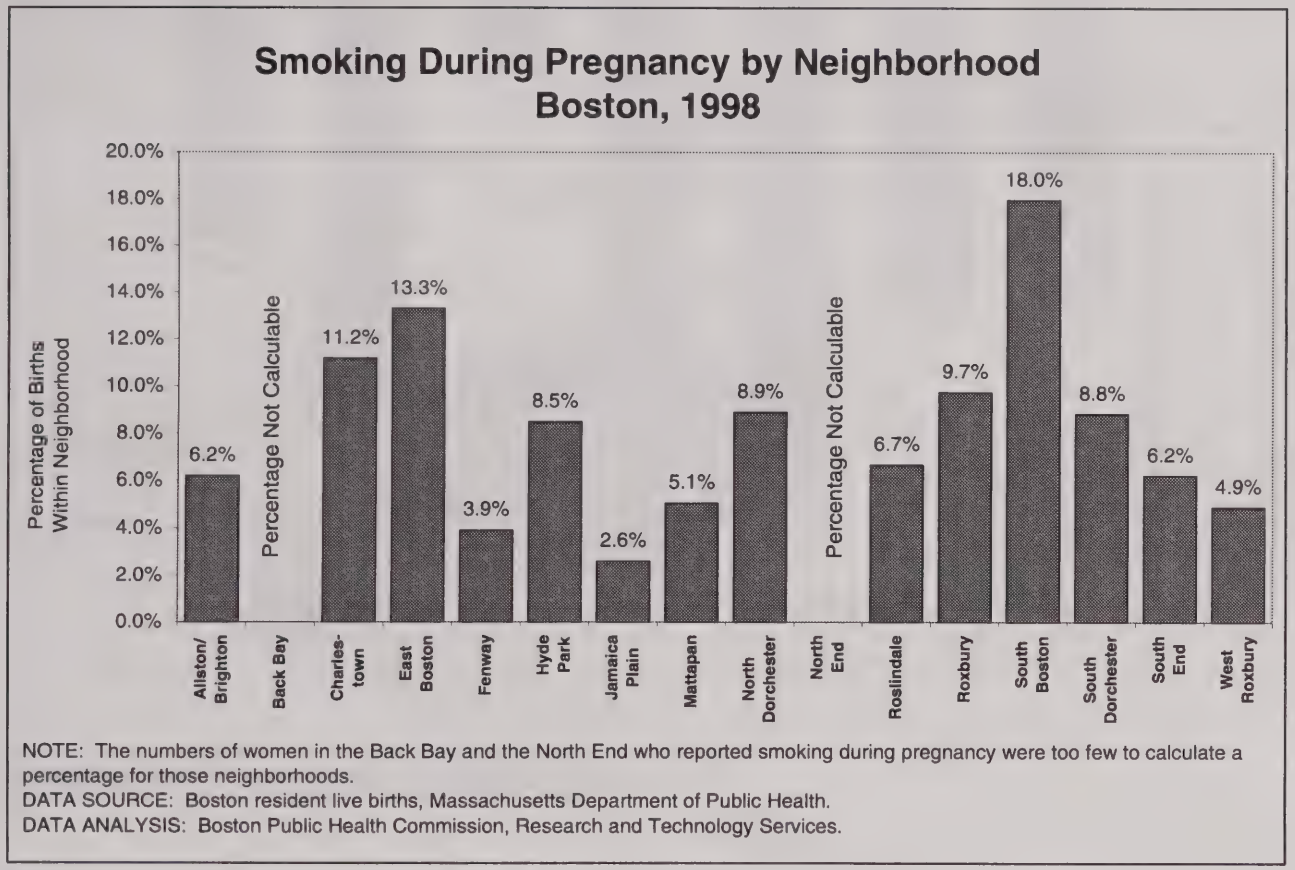


DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- In 1998, in Boston, smoking during pregnancy has a linear relationship to education, with smoking most common among women with less than a high school education, less frequent among those with a high school diploma or GED, and so on.

MATERNAL CHARACTERISTICS

Smoking During Pregnancy

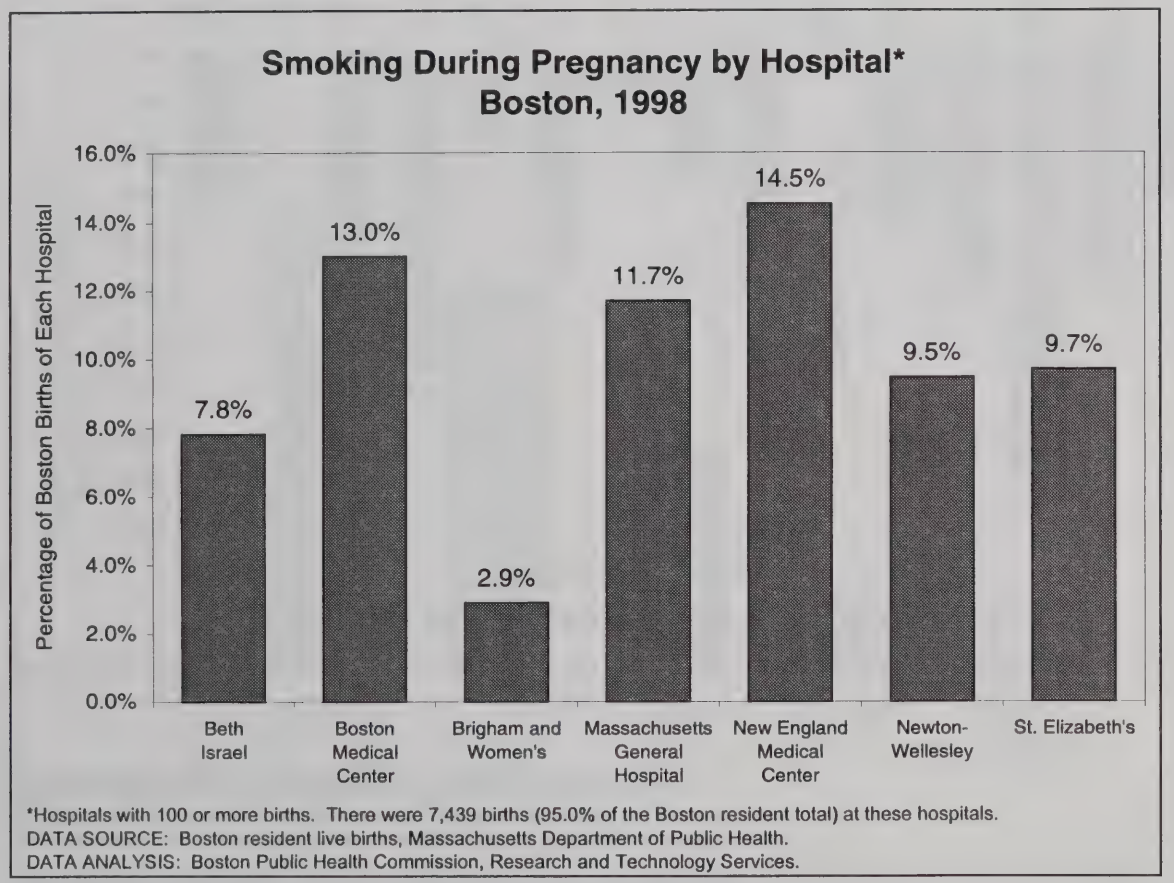


NOTE: The numbers of women in the Back Bay and the North End who reported smoking during pregnancy were too few to calculate a percentage for those neighborhoods.
DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- Overall, 8.1% of Boston births in 1998 were to women who reported smoking during pregnancy. South Boston, East Boston, and Charlestown had the highest rates of reported smoking during pregnancy in 1998, and Jamaica Plain (2.6%), the Fenway (3.9%), and West Roxbury (4.9%) had the lowest rates. The Back Bay and the North End each had fewer than five births to women who reported smoking.

MATERNAL CHARACTERISTICS

Smoking During Pregnancy



*Hospitals with 100 or more births. There were 7,439 births (95.0% of the Boston resident total) at these hospitals.
DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

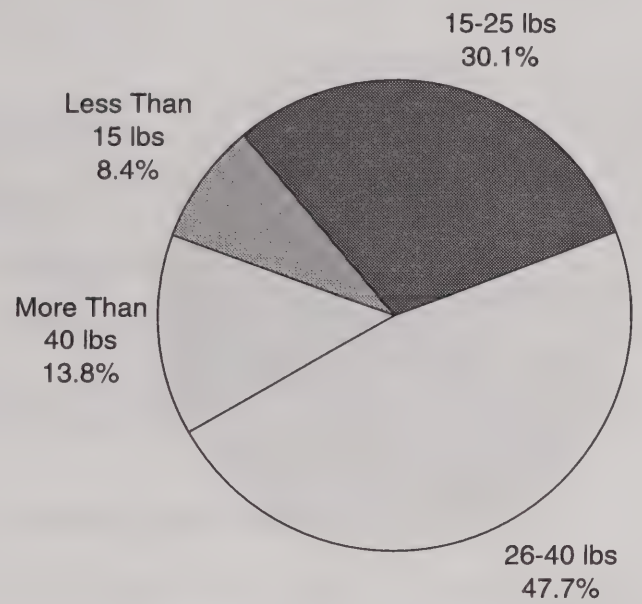
- In 1998, of hospitals that had 100 or more births, New England Medical Center, Boston Medical Center, and Massachusetts General Hospital had the highest reported rates of smoking during pregnancy.
- Brigham and Women's Hospital had the lowest reported rate of smoking during pregnancy in 1998.

MATERNAL CHARACTERISTICS

Weight Gain During Pregnancy

Weight gain during pregnancy is associated with infant birthweight and pregnancy outcome. Guidelines for weight gain during pregnancy vary by the pre-pregnancy weight and height of the mother. In general, the guidelines recommend gaining no less than 15 but no more than 40 pounds.

Weight Gain During Pregnancy
Boston, 1998



DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- The appropriateness of weight gain for *individual* women cannot be assessed because height is needed for that calculation, and it is not recorded in the birth data.
- However, of the 7,638 Boston births in 1998 for which data on pregnancy weight gain were available, 77.8% were to women whose weight gain was within the 15-40 pounds range.

MATERNAL CHARACTERISTICS

Prenatal Care Payment Source

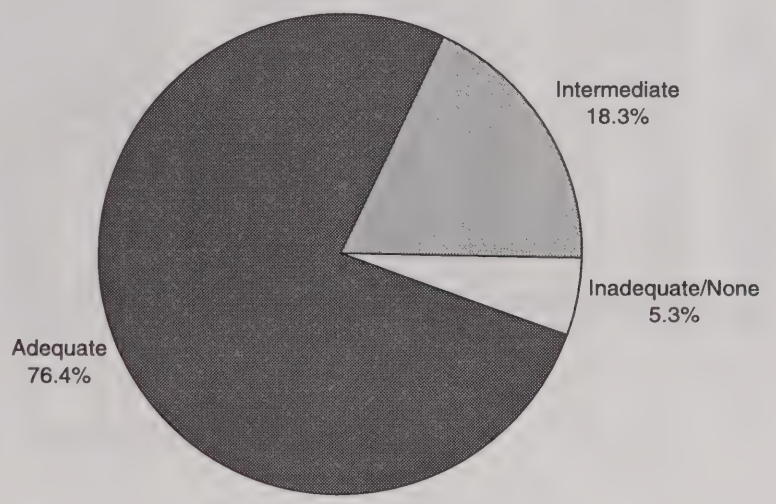
Source of Payment for Prenatal Care Boston, 1998	
Type Of Insurance	**Percentage of Births**
Private Insurance	
Blue Cross	6.3%
Commerical Insurance	12.5%
HMO	81.2%
Public Insurance	
Medicaid/Commonhealth	85.5%
Medicare	0.3%
Healthy Start	9.0%
Other government	4.6%
Free Care	0.6%
Other Insurance	
Workmans Compensation	n<5
Self Payer	48.5%
Other Specify	50.8%

- In 1998, payment for prenatal care for Boston births was almost evenly split between private insurers (for example, Blue Cross, commercial insurance, and HMOs) and publicly funded sources (for example, Medicaid/Commonhealth, the state Healthy Start program, other government programs, and the Uncompensated Care Pool).
- Other sources, neither public nor private, included workmen's compensation, self-payer, and "other."
- Of prenatal care paid for by private insurance payers, most was paid for by HMOs.
- Of prenatal care paid for by public insurance payers, most was paid for by Medicaid/Commonhealth.
- For most years since 1991, private insurance has covered prenatal care for more births than were covered by public insurance. Only in 1994 and 1995 did this situation reverse. Since 1991, private insurance payment for prenatal care has declined 4.3%, and public insurance payment for prenatal care has increased 5.8%.

MATERNAL CHARACTERISTICS

Adequacy of Prenatal Care

Adequate prenatal care is important for good pregnancy and birth outcomes. The Kessner Index measures the adequacy of prenatal care in terms of the frequency and timing of prenatal visits adjusted for the gestational age of the fetus at birth.

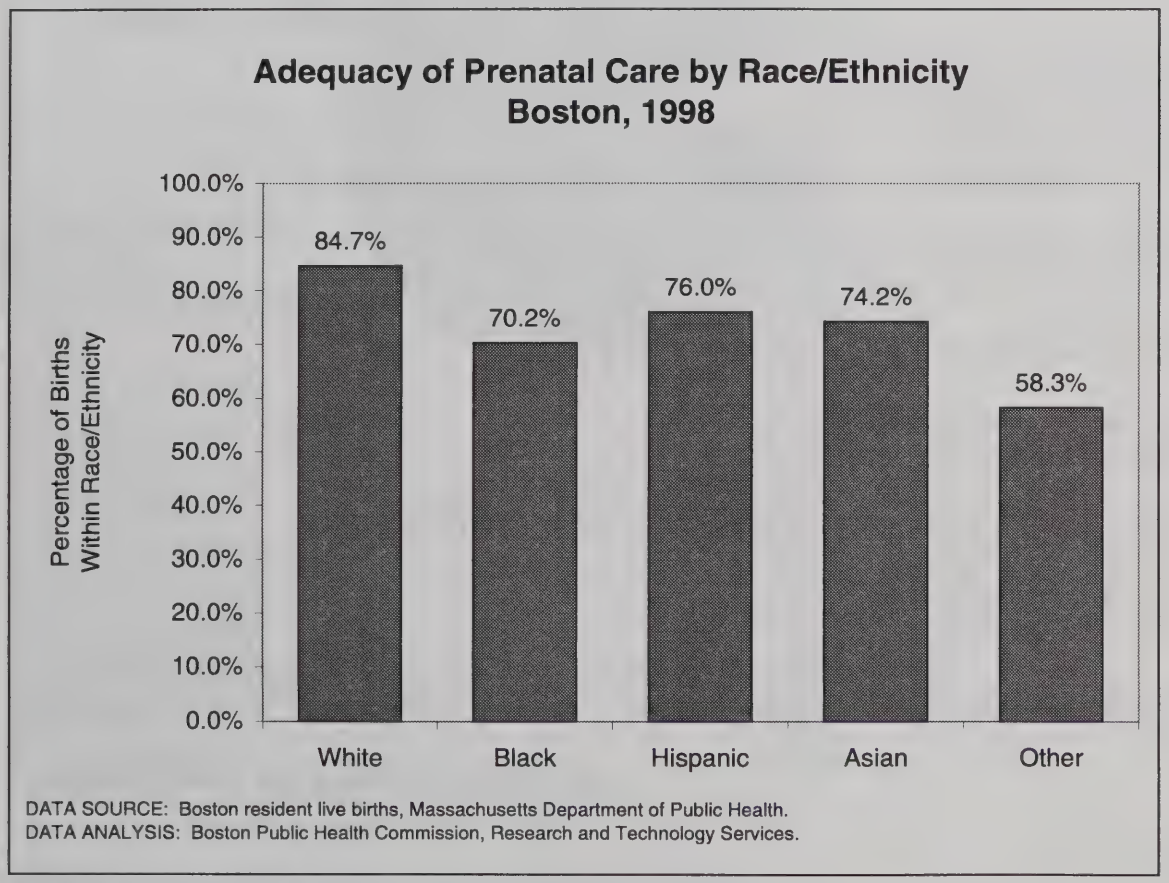


DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- In 1998, 76.4% of Boston births were to women who received adequate prenatal care, an increase from 73.0% in 1997.
- Five percent of Boston births were to women who received inadequate or no prenatal care.

MATERNAL CHARACTERISTICS

Adequacy of Prenatal Care

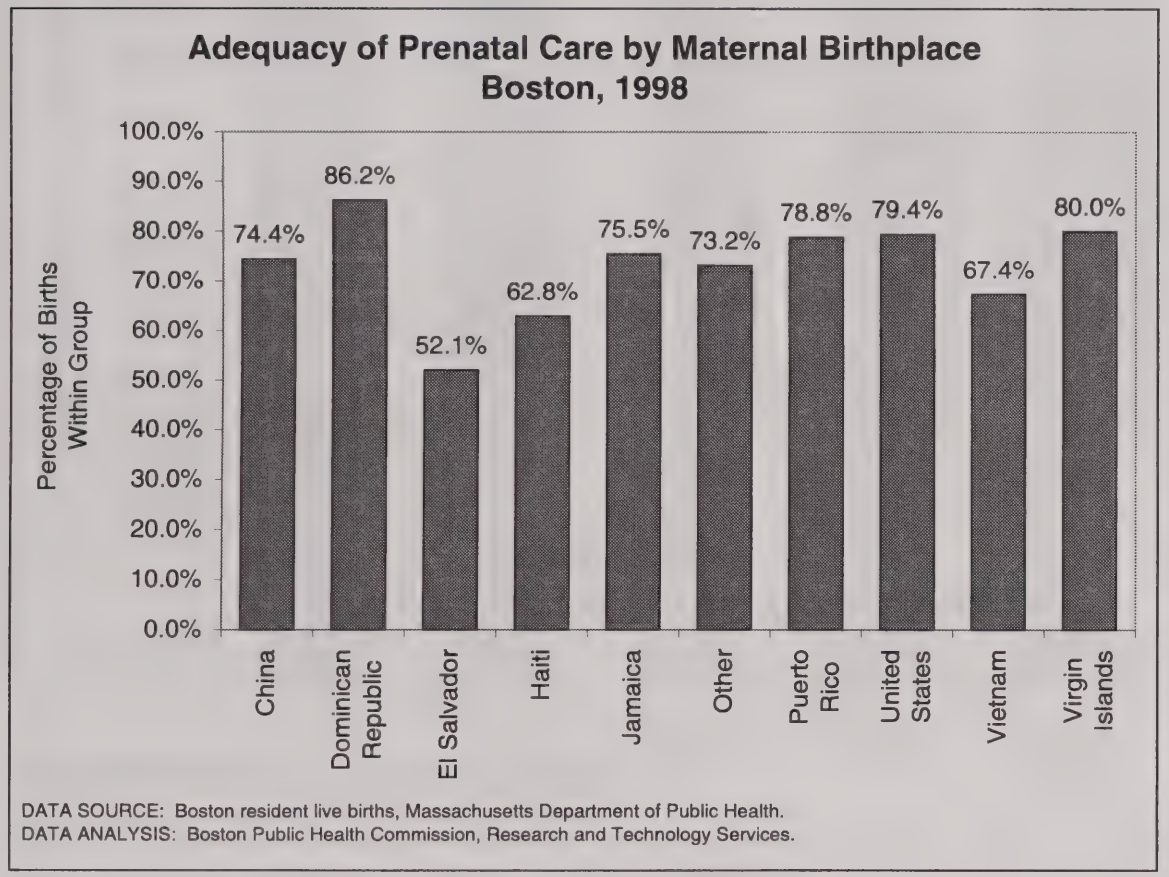


DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- In 1998, adequate prenatal care was more common among White Boston women than women of other race/ethnicity groups.
- From 1997 to 1998, the percentage of women receiving adequate prenatal care increased for Whites, Blacks, and Hispanics, but decreased slightly for Asian women.
- Black women had the greatest improvement, increasing from 65.2% in 1997 to 70.2% in 1998.

MATERNAL CHARACTERISTICS

Adequacy Of Prenatal Care

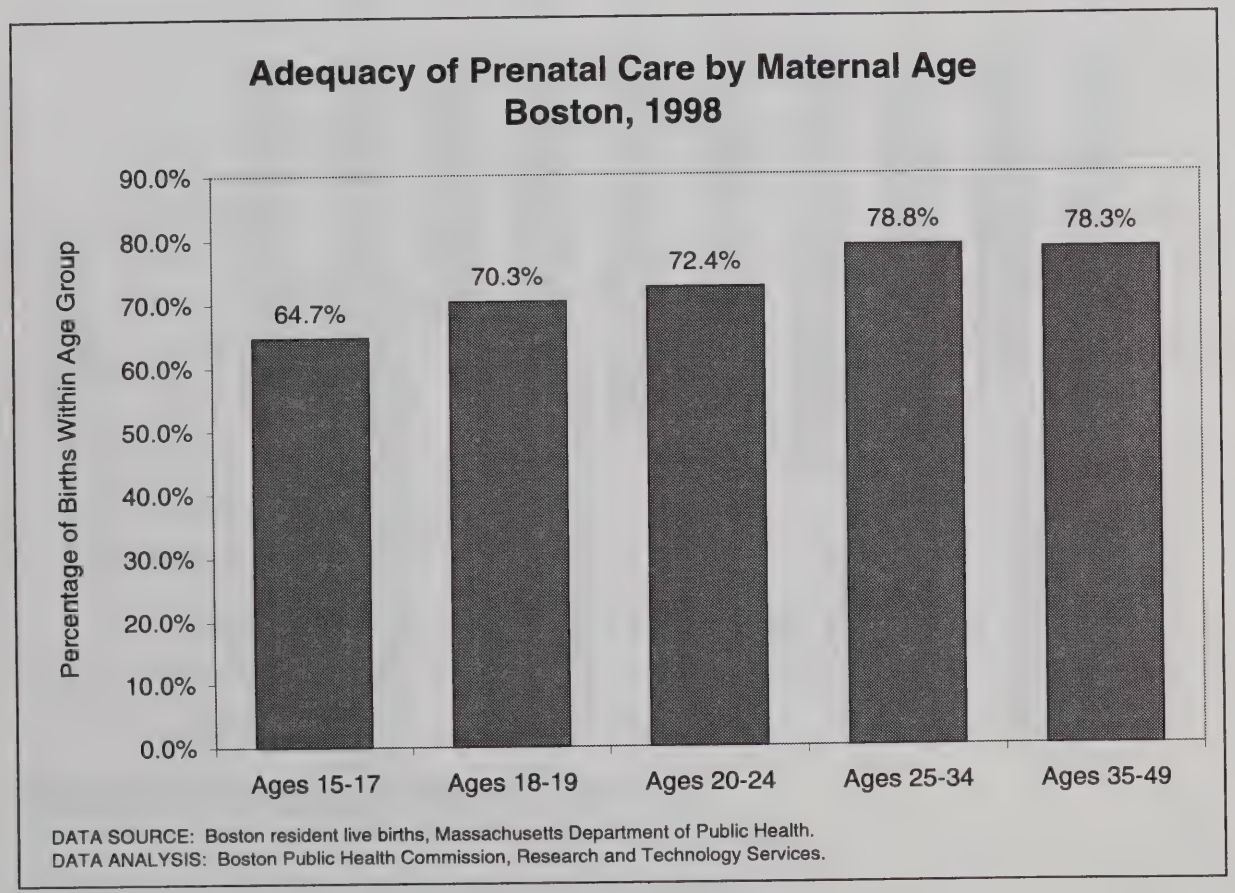


DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- In 1998, Boston women born in the Dominican Republic had the highest level of prenatal care adequacy, followed by women born in the Virgin Islands, the United States, Puerto Rico, and Jamaica.
- The lowest levels of prenatal care adequacy were found among Boston women born in El Salvador, Haiti, and Vietnam.

MATERNAL CHARACTERISTICS

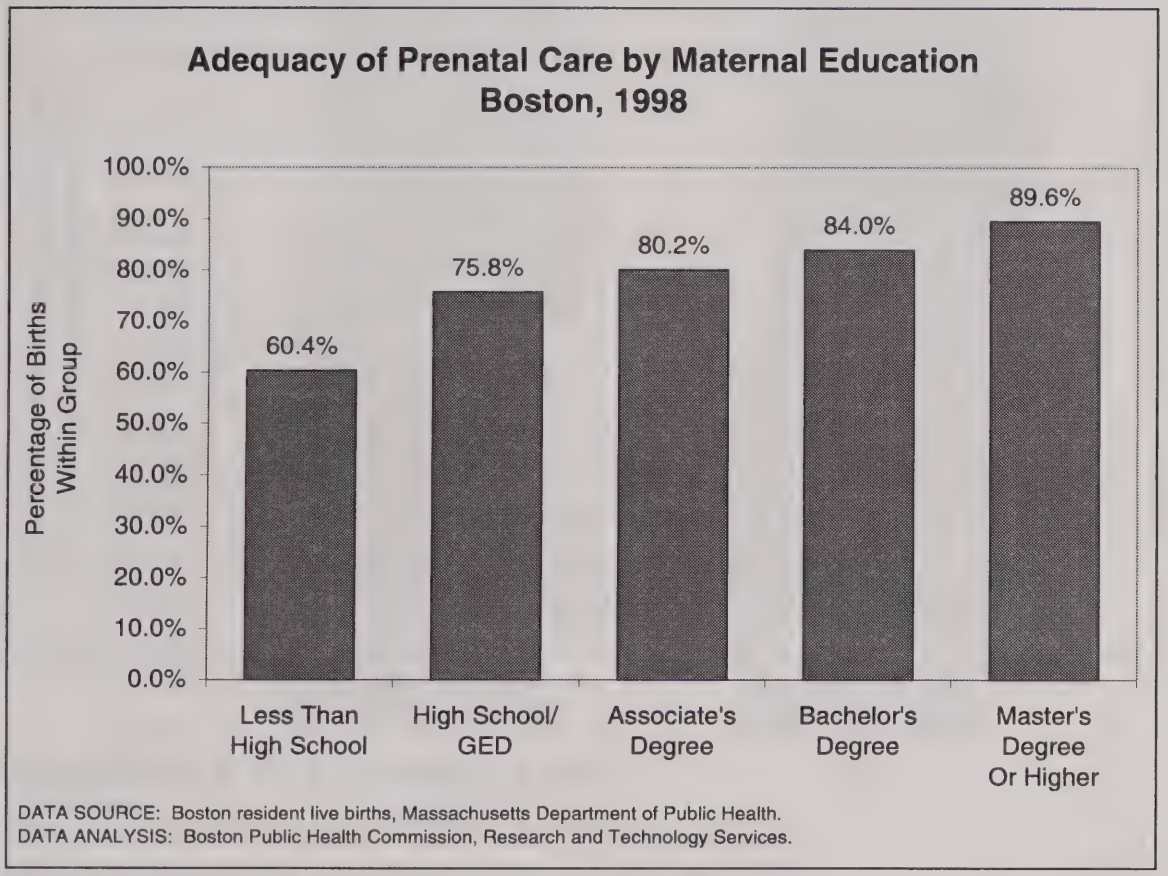
Adequacy Of Prenatal Care



- Adequacy of prenatal care varies by age, with adolescents ages 15-17 the least likely to receive adequate prenatal care and women ages 25-34 and 35-49 the most likely.
- In 1998, 9.3% of Boston births to women under age 20 and 4.8% of births to women ages 20 and over involved inadequate or no prenatal care.
- Between 1997 and 1998, adequate prenatal care for Boston women under the age of 20 increased 10.9%, from 61.2% of births to 67.9%.

MATERNAL CHARACTERISTICS

Adequacy of Prenatal Care

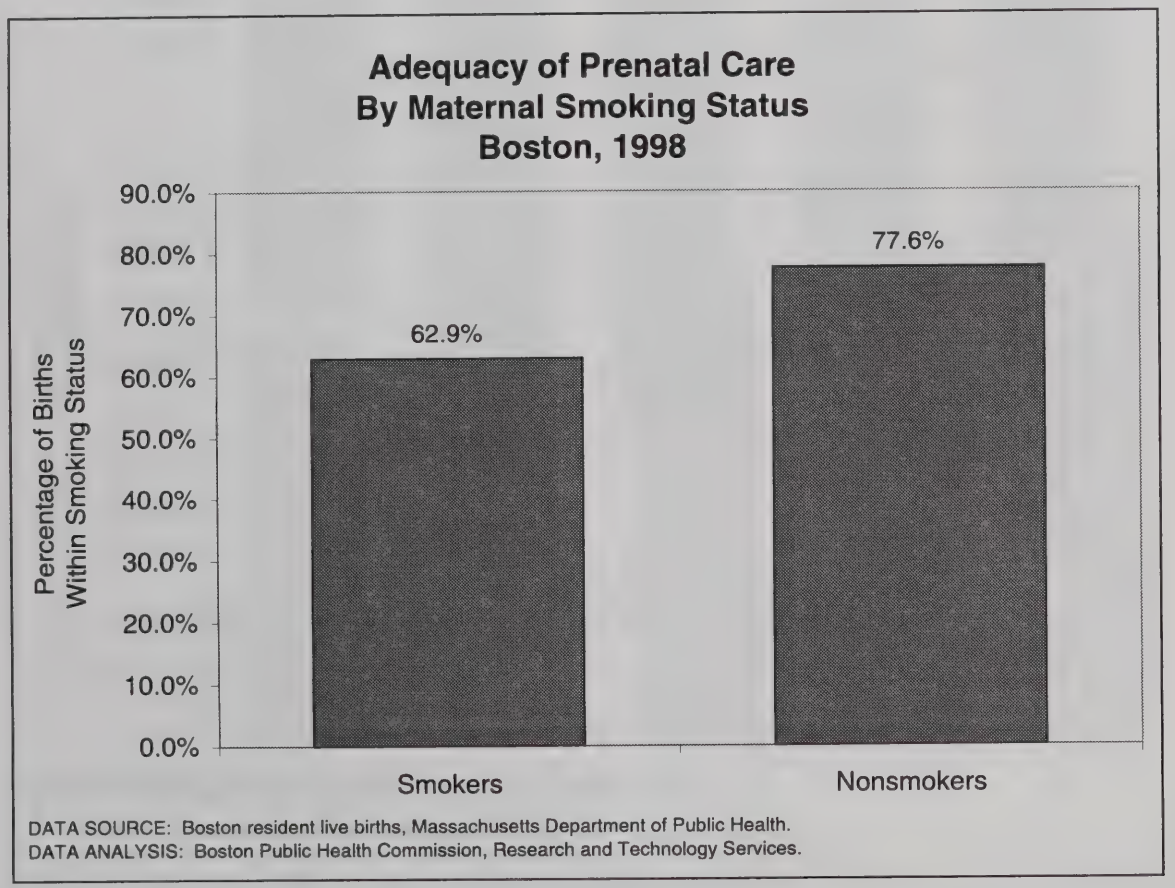


DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- Generally, adequacy of prenatal care increases with the level of education achieved.
- Boston women with less than a high school education are least likely to receive adequate prenatal care.

MATERNAL CHARACTERISTICS

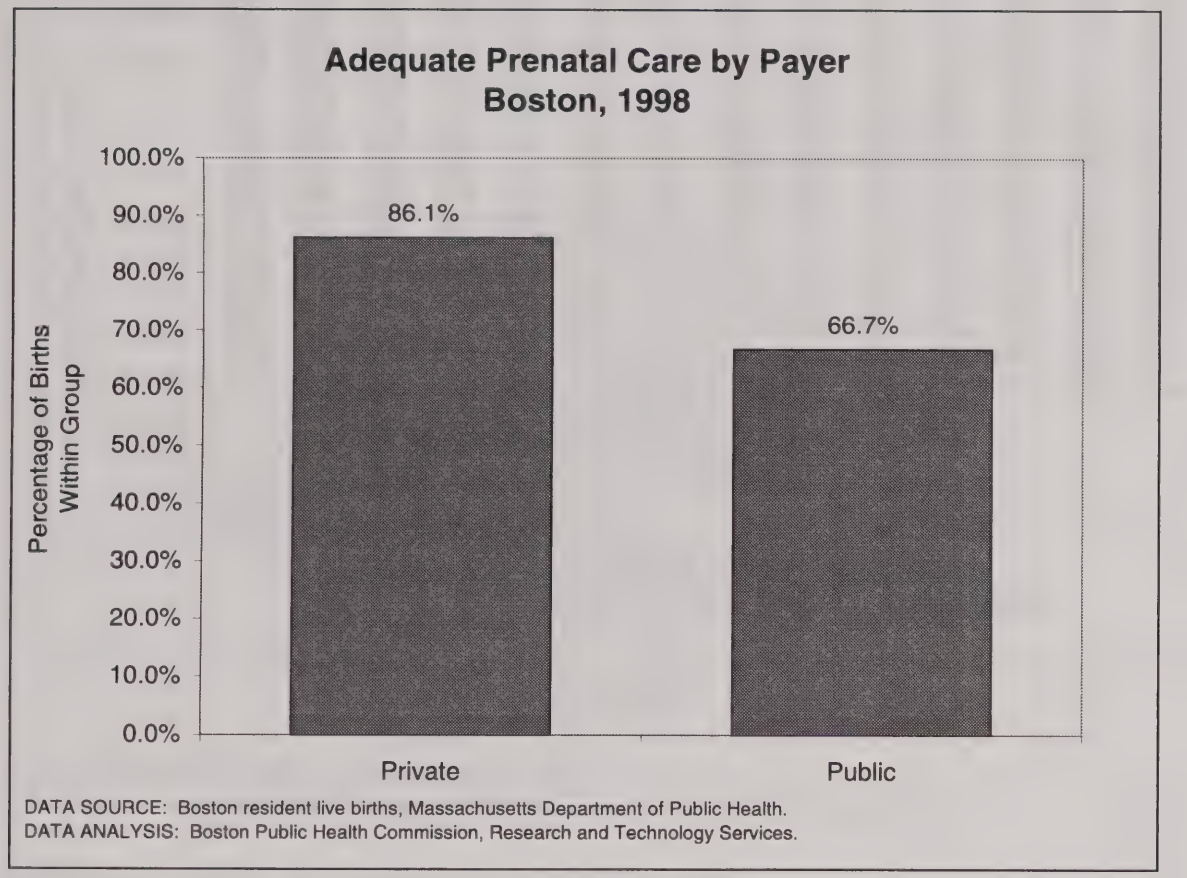
Adequacy of Prenatal Care



- During 1998, adequate prenatal care was less common among births to Boston women who reported smoking during pregnancy.
- The percentage of Boston births with inadequate or no prenatal care (10.9%) was also higher for women who reported smoking during pregnancy than those who did not (4.8%).

MATERNAL CHARACTERISTICS

Adequacy of Prenatal Care

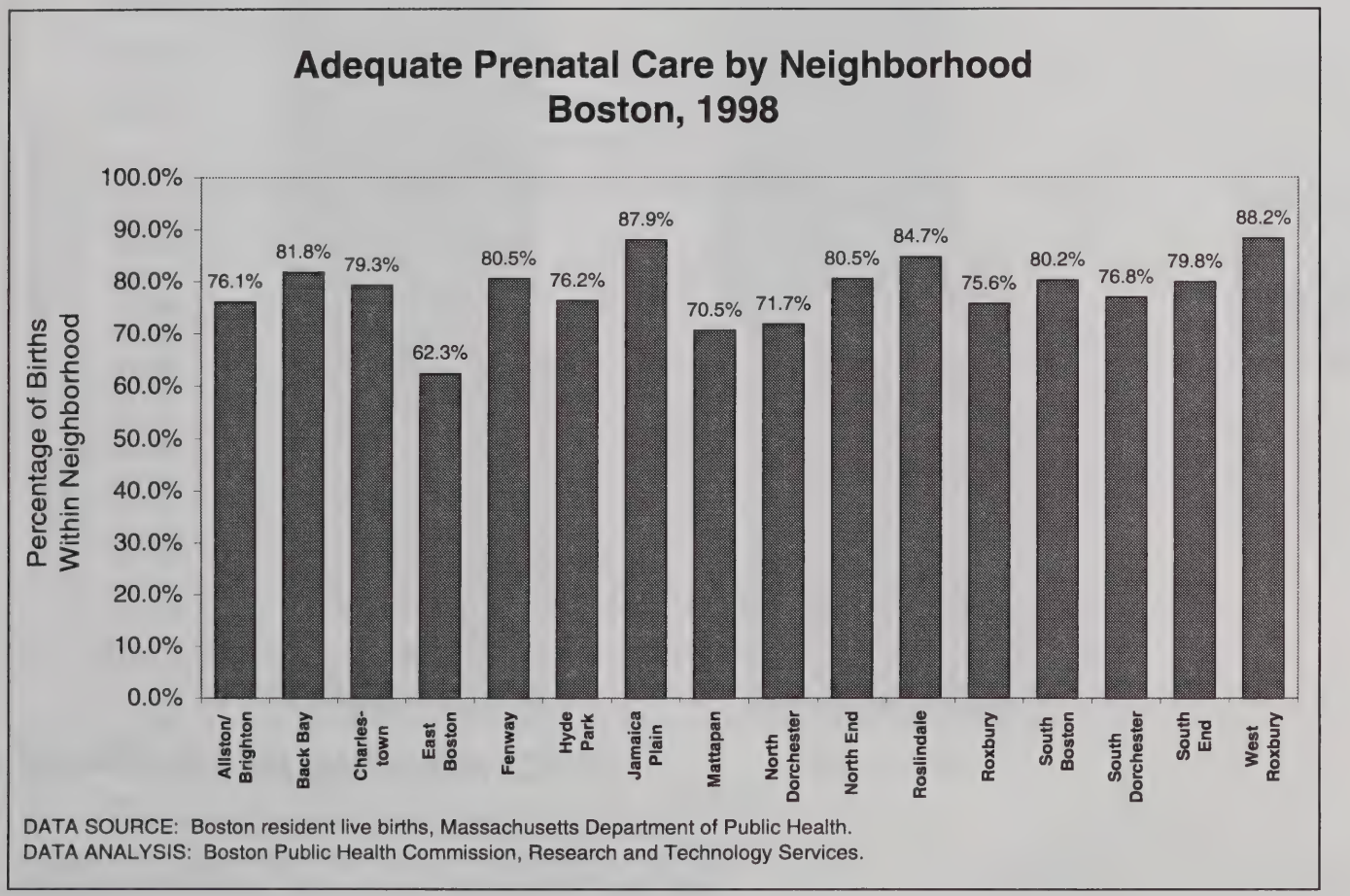


DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- In 1998, adequate prenatal care was more common among Boston births to women whose prenatal care was paid for by private insurers than among women whose prenatal care was paid for by publicly funded sources such as Medicaid, Medicare, state Healthy Start, other public programs, or the Uncompensated Care Pool.

MATERNAL CHARACTERISTICS

Adequacy of Prenatal Care



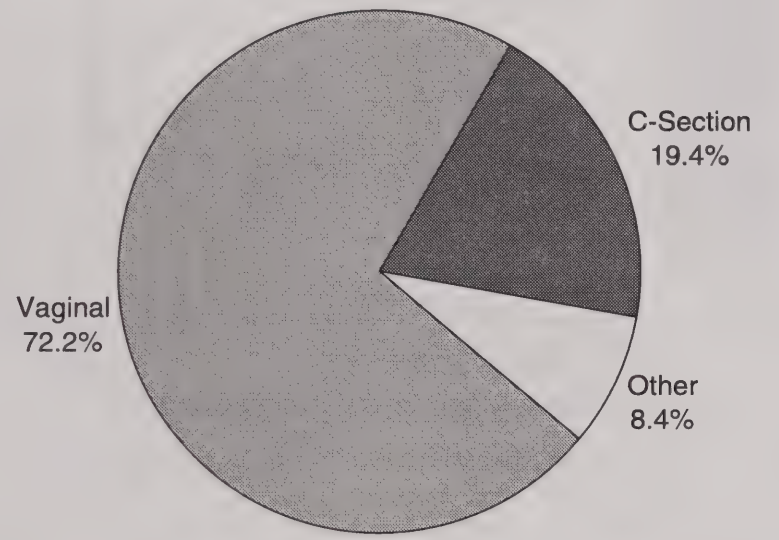
DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- Adequacy of prenatal care varies by Boston neighborhood. In 1998, the percentage of births to women who received adequate prenatal care ranged from a high of 88.2% in West Roxbury to a low of 62.3% in East Boston.
- The highest levels of prenatal care adequacy were in West Roxbury, Jamaica Plain, Roslindale, the Back Bay, the Fenway, and the North End. The lowest levels of adequate prenatal care occurred in East Boston, Mattapan, and North Dorchester.

MATERNAL CHARACTERISTICS

Delivery Method

Births by Method of Delivery
Boston, 1998

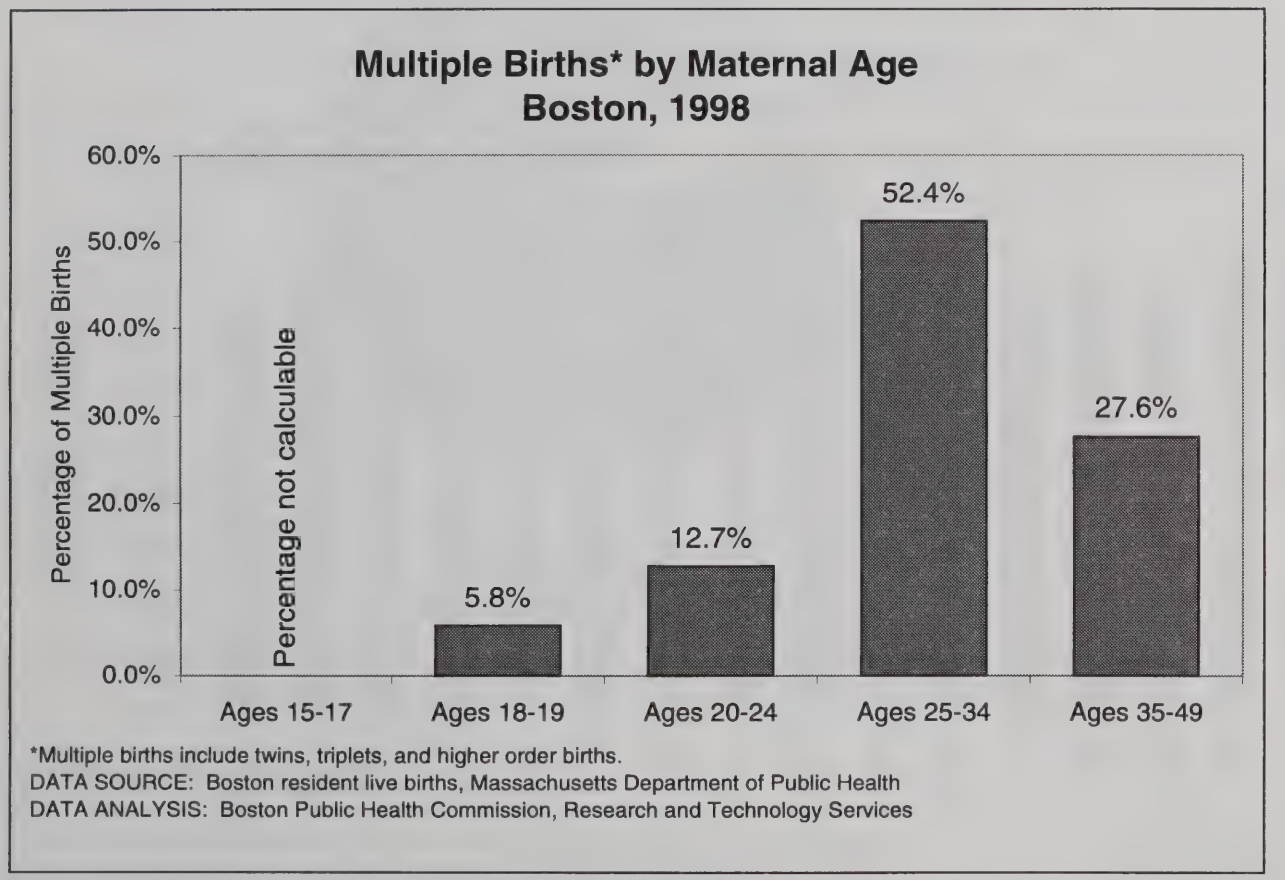


DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- Almost three quarters of births to Boston women during 1998 were by vaginal delivery. This is unchanged from 1997.
- Births by cesarean section delivery accounted for 19.4% in 1998, up slightly from 18.6% in 1997.
- Other methods, such as vacuum and forceps, accounted for the remainder of deliveries.

INFANT CHARACTERISTICS

Multiple Births

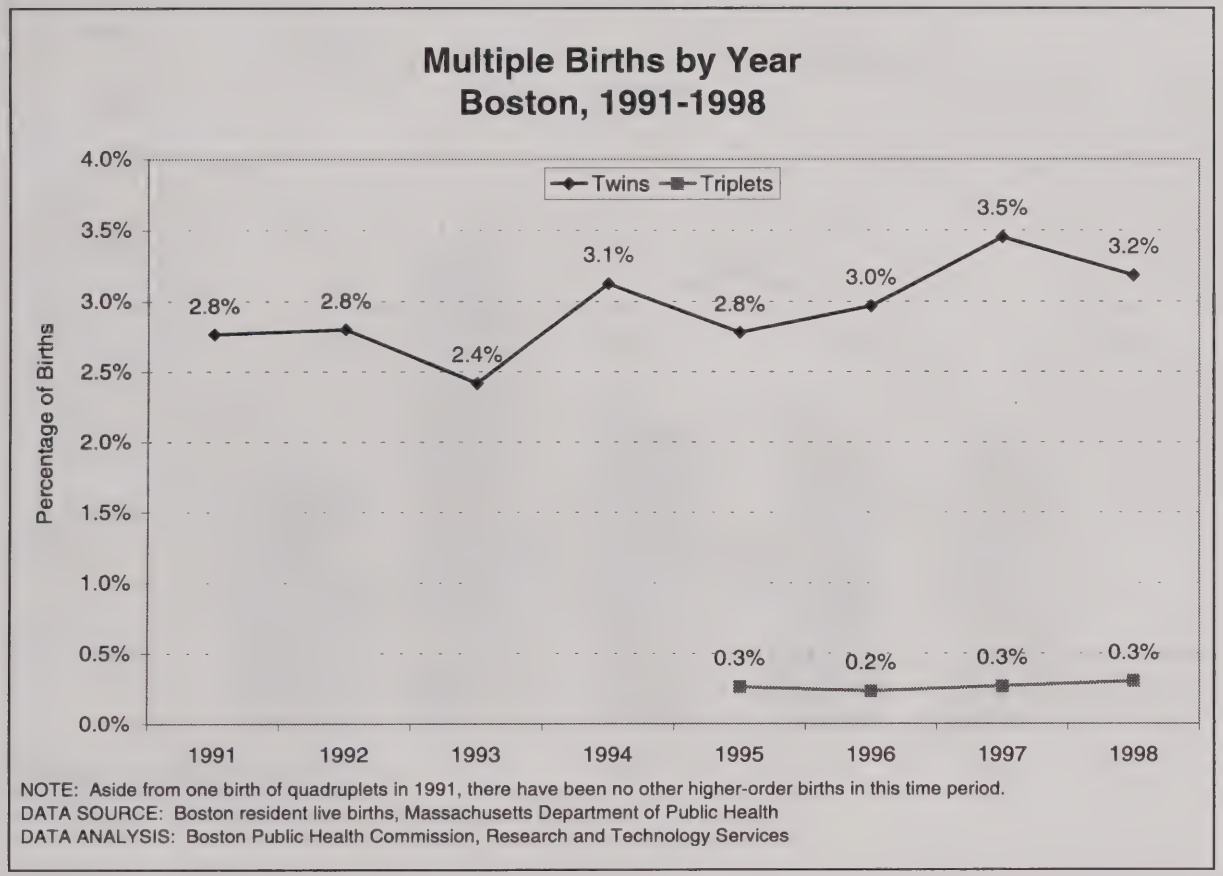


*Multiple births include twins, triplets, and higher order births.
DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services

- Massachusetts has the highest multiple-birth rate in the US, due at least in part to its mandatory insurance coverage of fertility treatment, which dramatically increases the likelihood of multiple births.
- Eighty percent of Boston's multiple births during 1998 were to women ages 25-49. Women in younger age groups made up the balance.
- There were too few multiple births to females ages 15-17 to calculate a rate.

INFANT CHARACTERISTICS

Multiple Births Trends

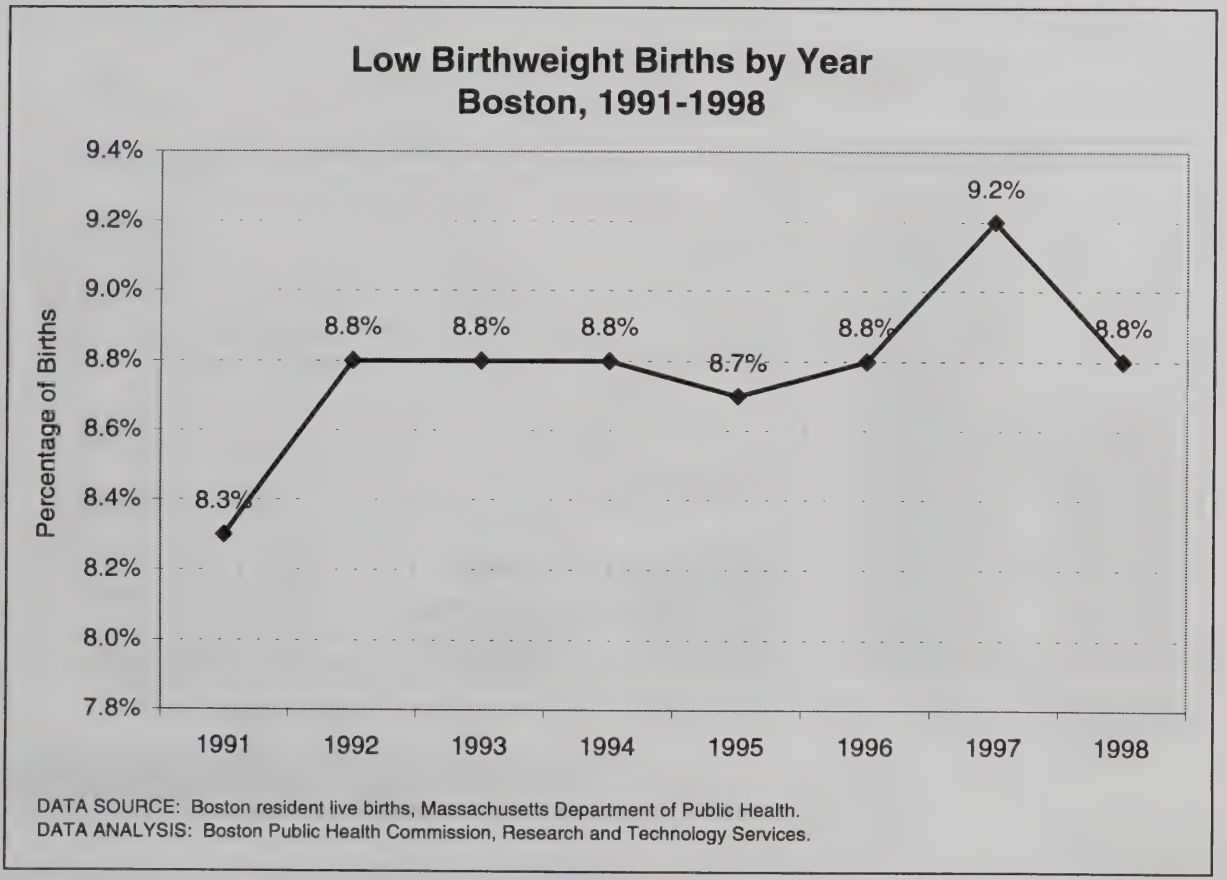


NOTE: Aside from one birth of quadruplets in 1991, there have been no other higher-order births in this time period.
DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services

- The overall multiple birth rate in Boston increased from 2.8% in 1991 to 3.5% in 1998.
- In Boston, in 1998, 3.2% of births were twin births, compared to 3.5% in 1997, and 2.8% in 1991. In Boston, the frequency of twin births as a percentage of all births has increased 14.3% since 1991.
- On the other hand, the percentage which were triplets rose from zero in 1991 to 0.3% in 1995 and has remained stable since then.

INFANT CHARACTERISTICS

Low Birthweight

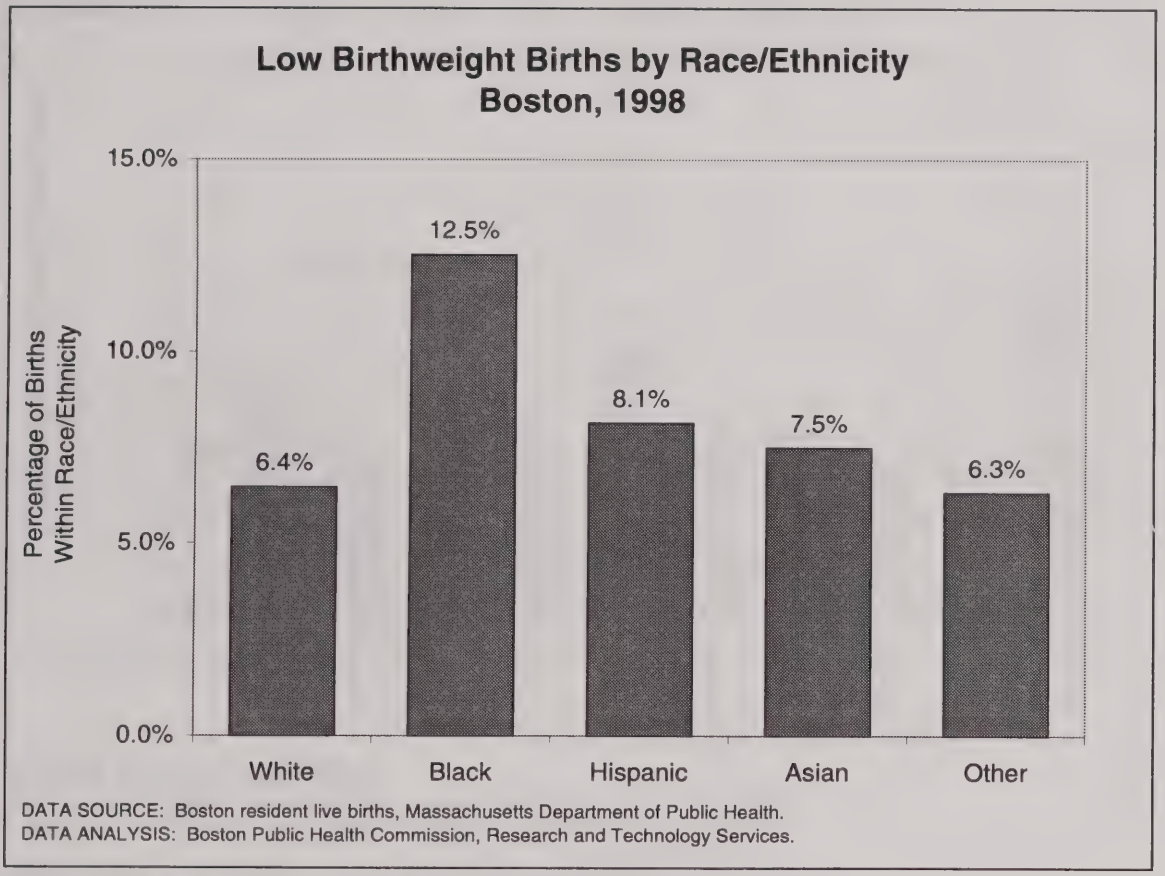


DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- In 1998 in Boston, 694 births (8.8%) were low birthweight (LBW), or less than 2,500 grams, or 5.5 pounds, at delivery.
- The 1998 LBW rate represents a 4.3% decline from the LBW rate in 1997 (9.2%).
- Between 1991 and 1998, the LBW rate for Boston births has fluctuated from a low of 8.3% (in 1991) to a high of 9.2% (in 1997).

INFANT CHARACTERISTICS

Low Birthweight



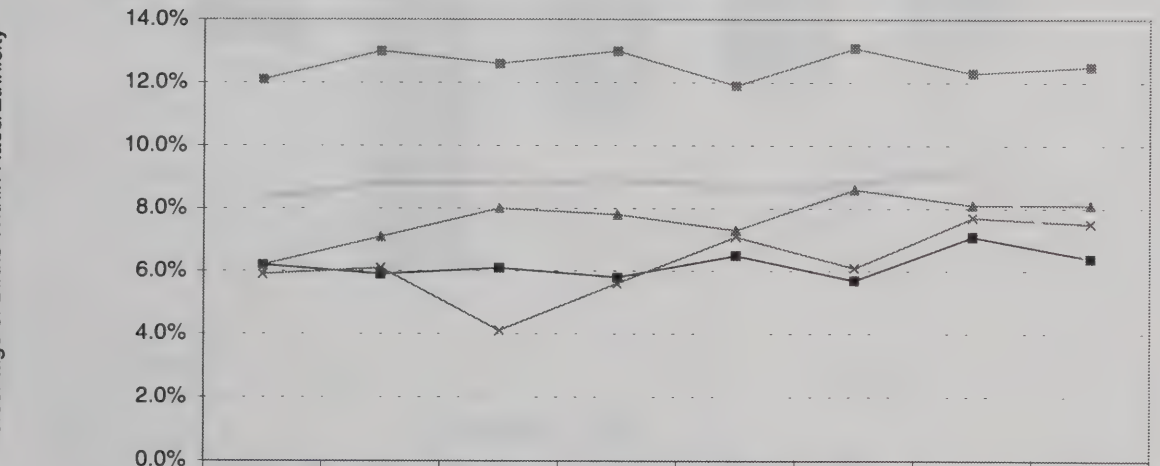
DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- In 1998, the low birthweight rate for Black infants was almost twice that of Whites, and at least fifty percent higher than that of any other racial/ethnic group in Boston.
- The LBW rate for Black infants in 1998 represents a slight increase over the rate in 1997 (12.3%). Since 1991, this percentage has fluctuated between 11.9% and 13.1%.

INFANT CHARACTERISTICS

Low Birthweight

Low Birthweight Births by Race/Ethnicity and Year
Boston, 1991-1998



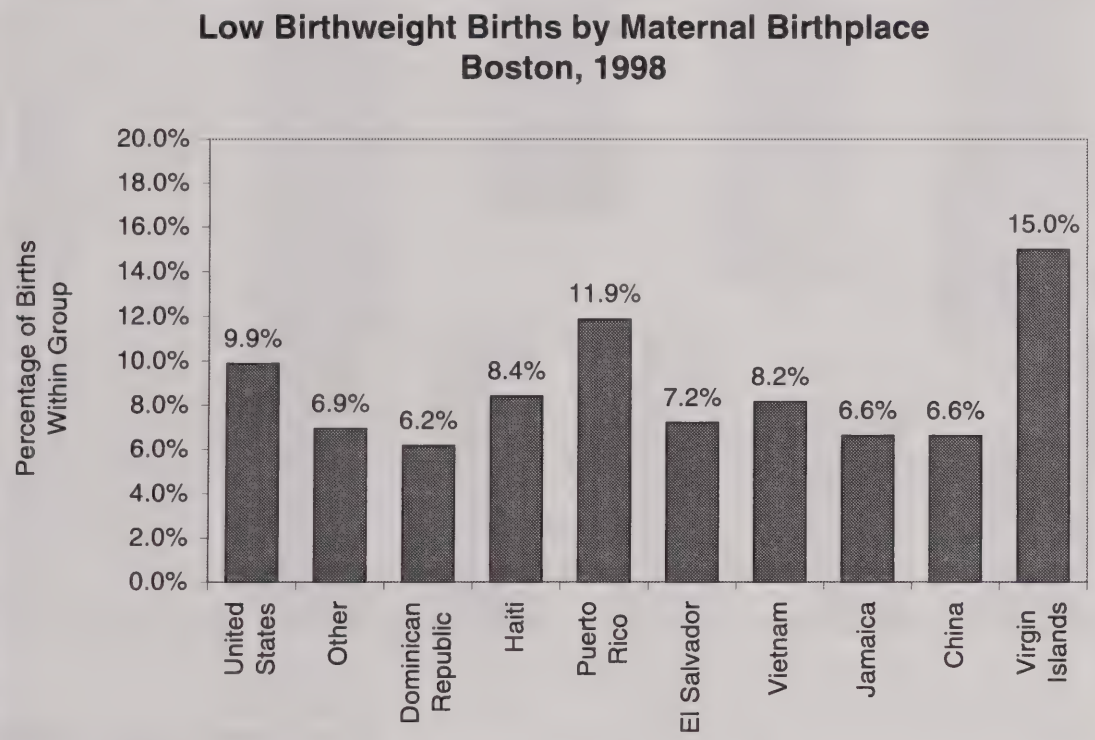
	1991	1992	1993	1994	1995	1996	1997	1998
White	6.2%	5.9%	6.1%	5.8%	6.5%	5.7%	7.1%	6.4%
Black	12.1%	13.0%	12.6%	13.0%	11.9%	13.1%	12.3%	12.5%
Hispanic	6.2%	7.1%	8.0%	7.8%	7.3%	8.6%	8.1%	8.1%
Asian	5.9%	6.1%	4.1%	5.6%	7.1%	6.1%	7.7%	7.5%
All of Boston	8.3%	8.8%	8.8%	8.9%	8.7%	8.8%	9.2%	6.3%

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services

- The LBW rate for Black infants has remained stable since 1991 and is the highest of the reported races/ethnicities in Boston.
- The LBW rates for Whites and Hispanics have remained relatively stable since 1991, for Whites fluctuating between 6.2% in 1991 and 7.1% in 1997, and for Hispanics fluctuating between 6.2% in 1991 and 8.6% in 1996.
- The LBW rate for Asian infants has fluctuated from a low of 4.1% in 1993 to a high of 7.7% in 1997.

INFANT CHARACTERISTICS

Low Birthweight

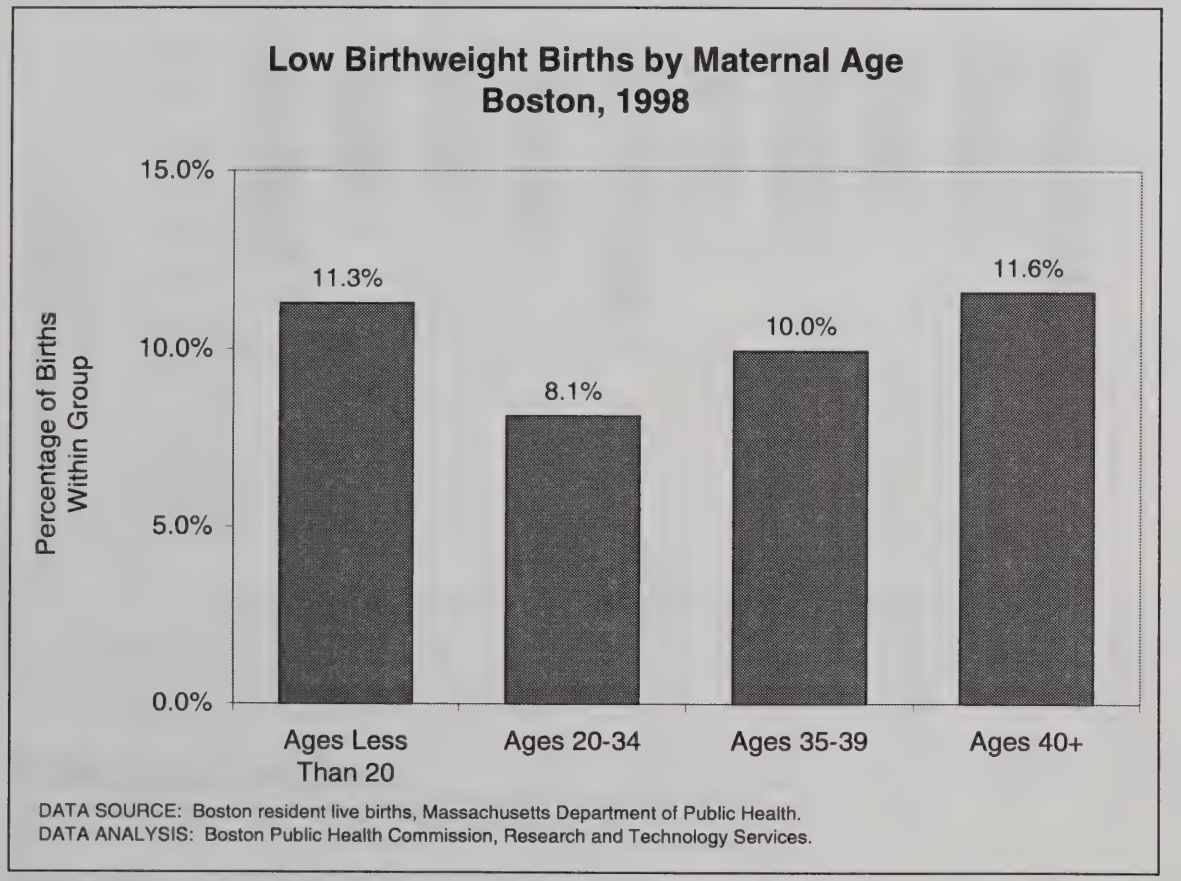


DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- In 1998, births to Boston women born in the Virgin Islands or Puerto Rico were more likely to be low birthweight than births to women born in the US. (For these purposes, the US comprises the fifty states only; US territories are considered separately.)
- LBW rates in 1998 were lowest among births to women born in the Dominican Republic, Jamaica, or China.

INFANT CHARACTERISTICS

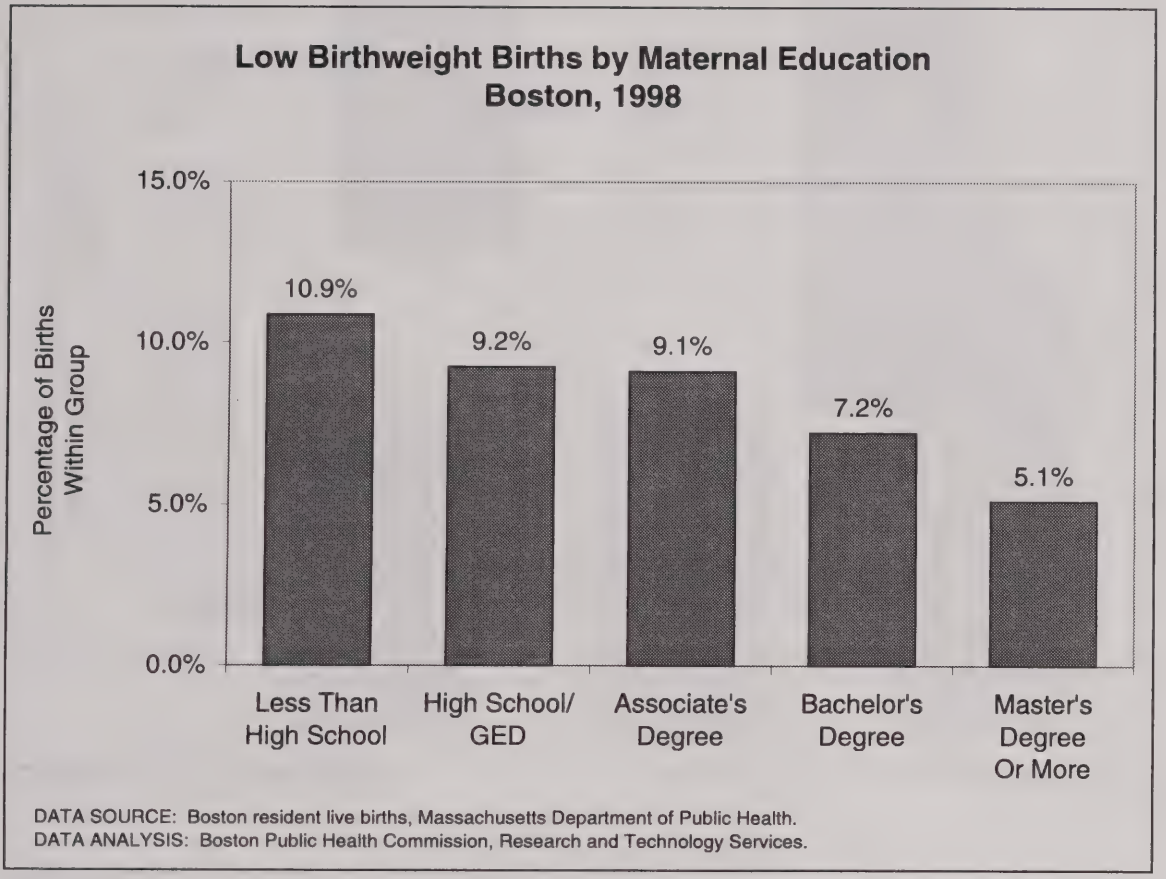
Low Birthweight



- LBW rates in Boston are consistent with the pattern in the US, where the highest LBW rates are found among the youngest and oldest women.
- In 1998, births to Boston women under 20 years of age or over 35 years of age were more likely to be low birthweight than births to women between the ages of 20 and 34.

INFANT CHARACTERISTICS

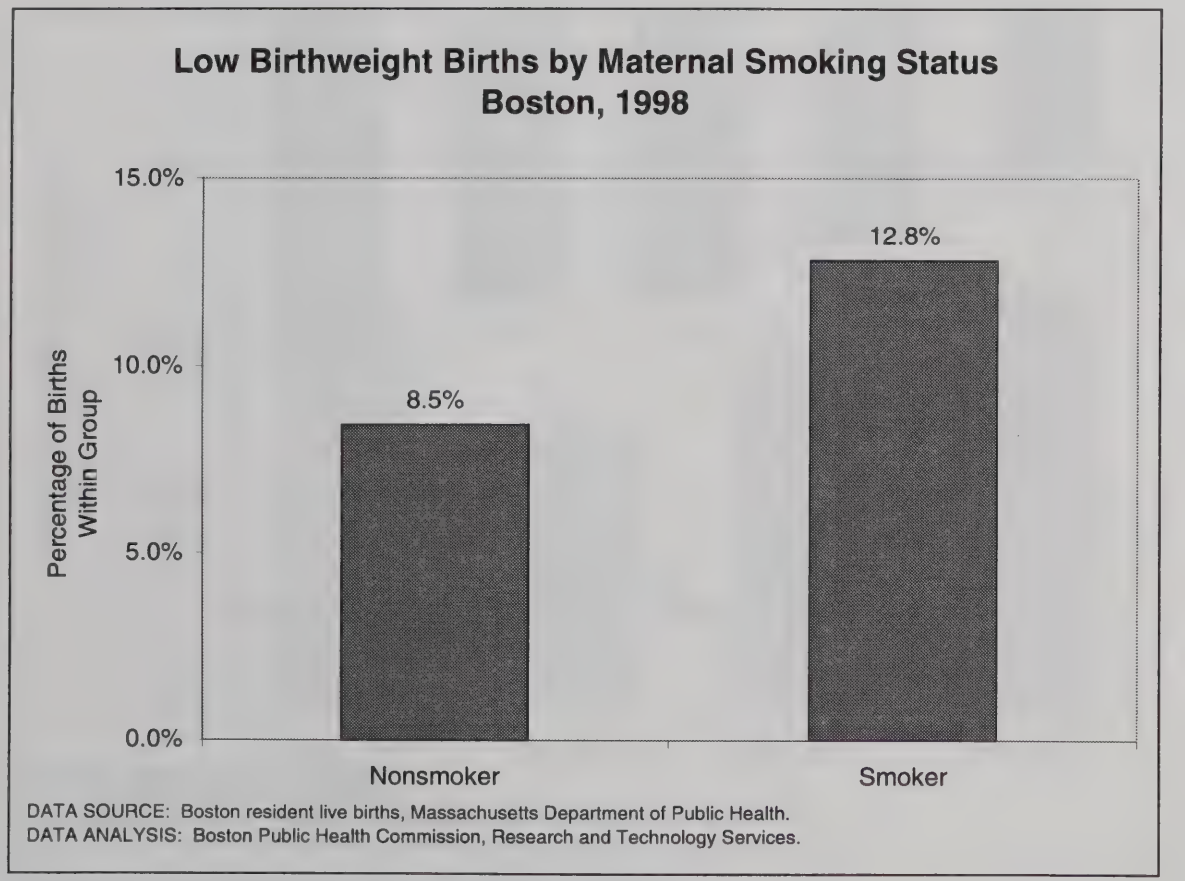
Low Birthweight



- Women with less education are more likely to give birth to LBW infants than those with more education.
- In Boston in 1998, one in nine births to women with less than a high school diploma were LBW, compared with one in twenty births to women with a master's degree or higher education.

INFANT CHARACTERISTICS

Low Birthweight

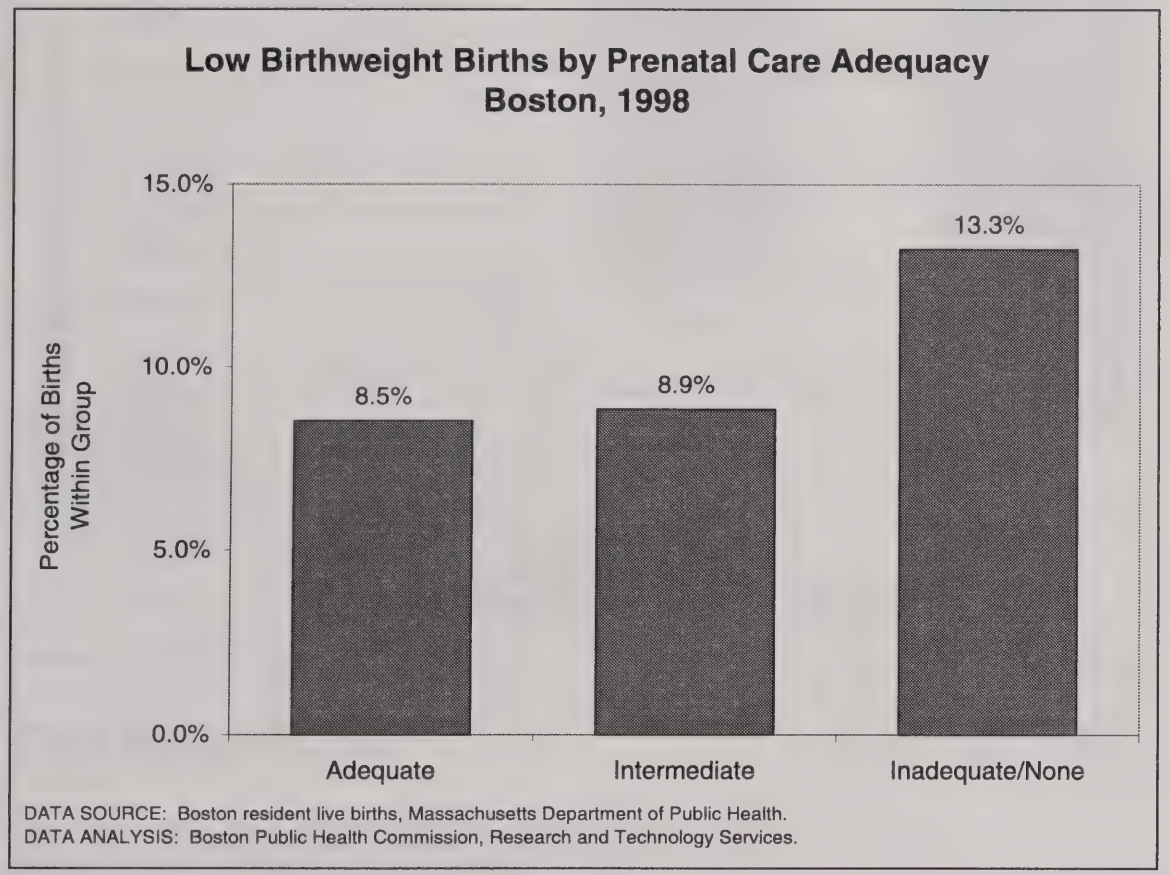


- Tobacco use by women during pregnancy is associated with a variety of health risks for infants, including miscarriage, intrauterine growth retardation, low birthweight, and infant mortality, as well as negative consequences for child health and development. *
- In Boston in 1998, the LBW rate for the infants of women who smoked during pregnancy was almost one and a half times greater than the rate for infants whose mother did not smoke.

* US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics. National Vital Statistics Reports, Births: Final Data for 1998. Vol. 48. Number 3, p.11.

INFANT CHARACTERISTICS

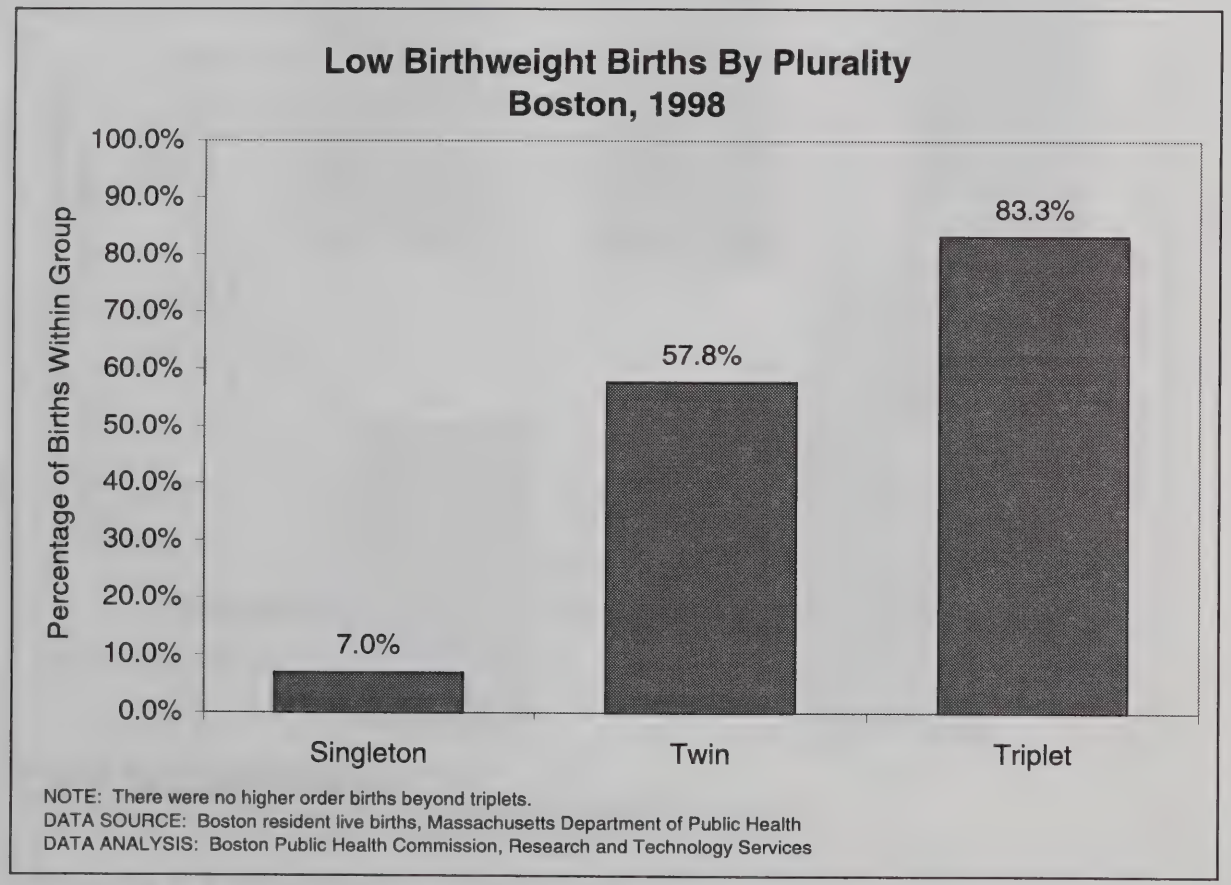
Low Birthweight



- Infants born to women who do not receive adequate prenatal care have an elevated risk of low birthweight.
- In Boston in 1998, 8.5% of births to women who had adequate prenatal care were LBW, as were 8.9% of births to women whose care was intermediate in adequacy and 13.3% of births to women who had inadequate or no prenatal care.

INFANT CHARACTERISTICS

Low Birthweight

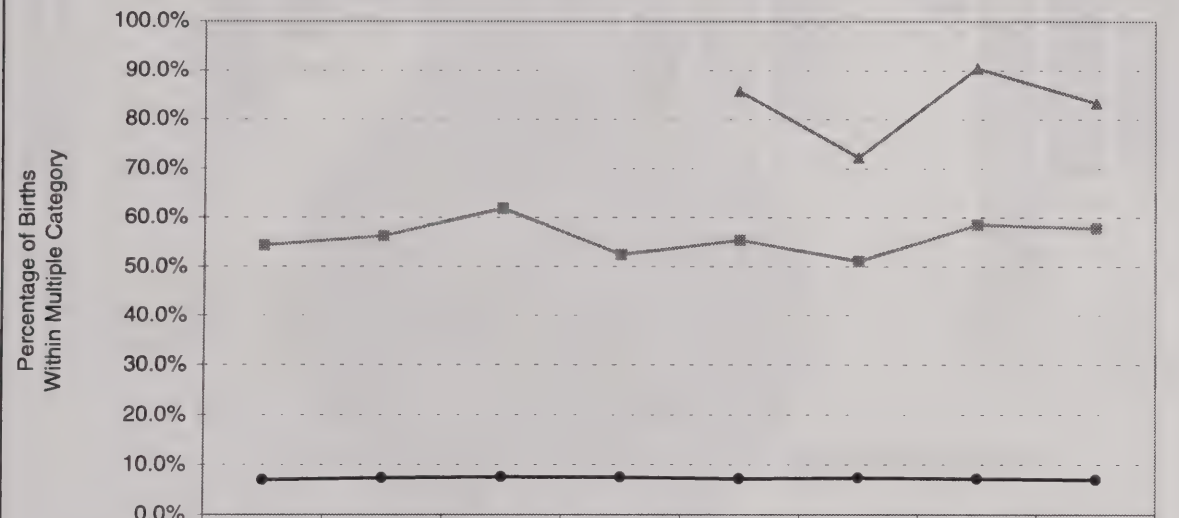


- In 1998, 60.0% of Boston multiple births were low birthweight.
- The risk of low birthweight increases with plurality. While only seven percent of singleton births in 1998 were LBW, among multiple births 57.8% of twins and 83.3% of triplets were LBW.

INFANT CHARACTERISTICS

Low Birthweight

Low Birthweight Births by Plurality by Year
Boston, 1991-1998



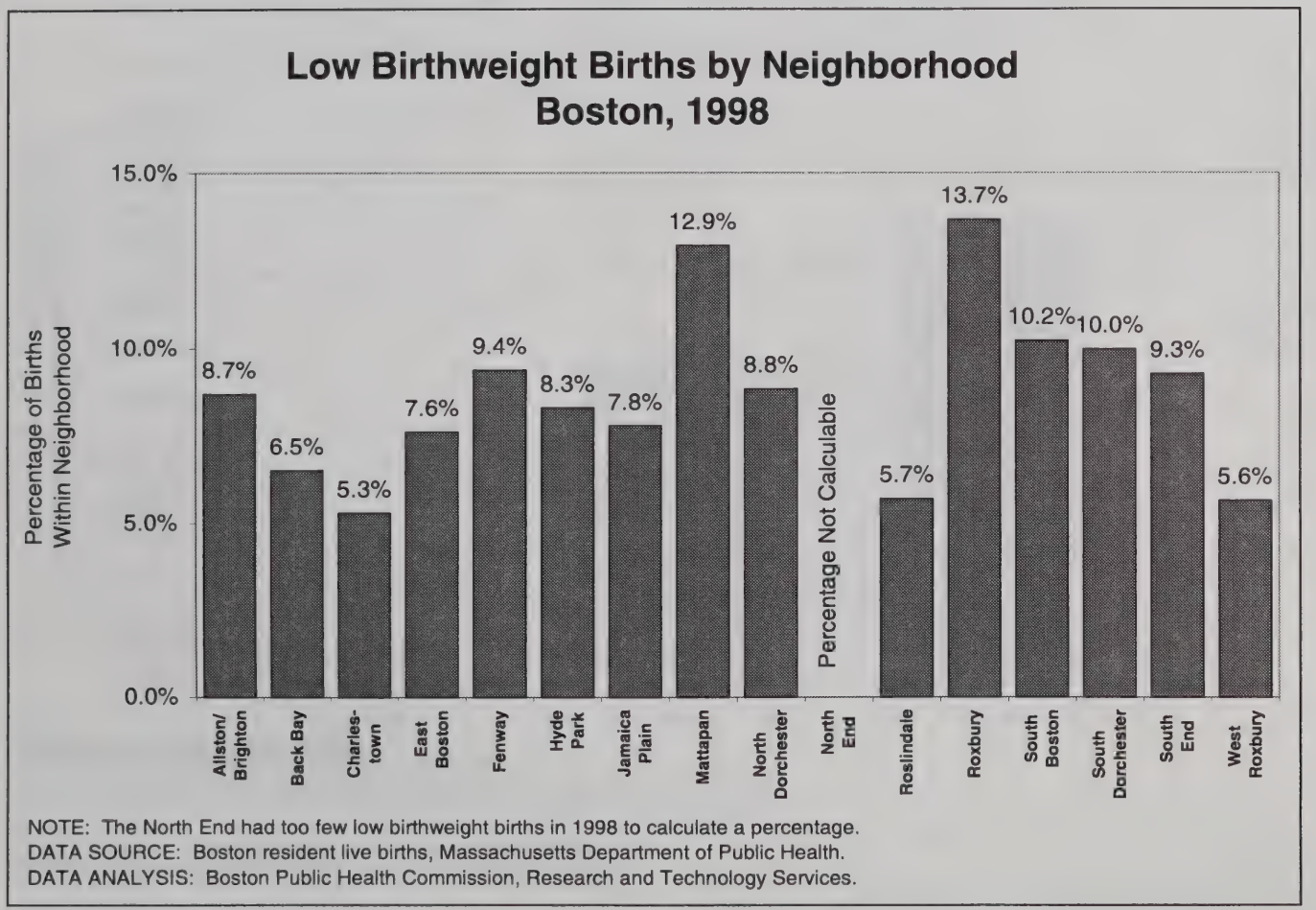
	1991	1992	1993	1994	1995	1996	1997	1998
Singletons	7.0%	7.4%	7.5%	7.4%	7.1%	7.4%	7.2%	7.0%
Twins	54.4%	56.2%	61.8%	52.5%	55.4%	51.1%	58.5%	57.8%
Triplets					85.7%	72.2%	90.5%	83.3%

NOTE: There were no triplets during 1991-1994 and only one higher-order birth during 1991-1998.
DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

- Between 1991 and 1998, low birthweight among singletons remained at 7.0%. Low birthweight among twins increased 6.3%.
- No triplets were born to Boston residents during the years 1991 through 1994; between 1995 and 1998, the percentage of low birthweight among triplets ranged from 72.2% to 90.5%.

INFANT CHARACTERISTICS

Low Birthweight

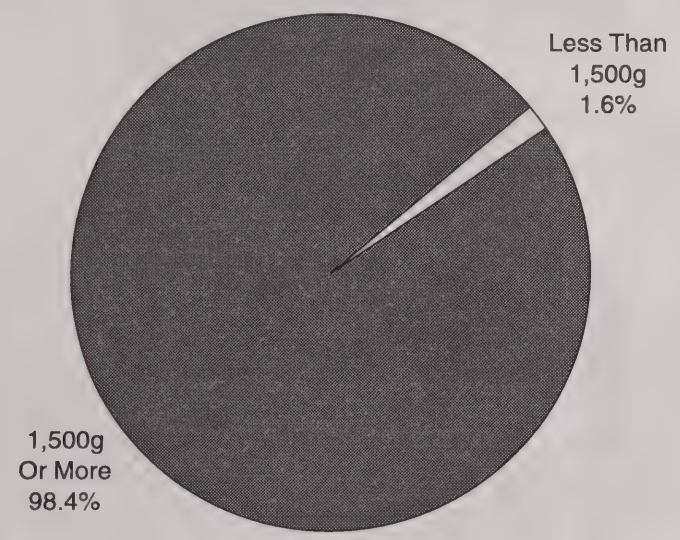


NOTE: The North End had too few low birthweight births in 1998 to calculate a percentage.
DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- Boston's highest rates of LBW in 1998 were among residents of Roxbury and Mattapan. The city's lowest rates were among residents of Charlestown, West Roxbury, and Roslindale.

INFANT CHARACTERISTICS

Very Low Birthweight



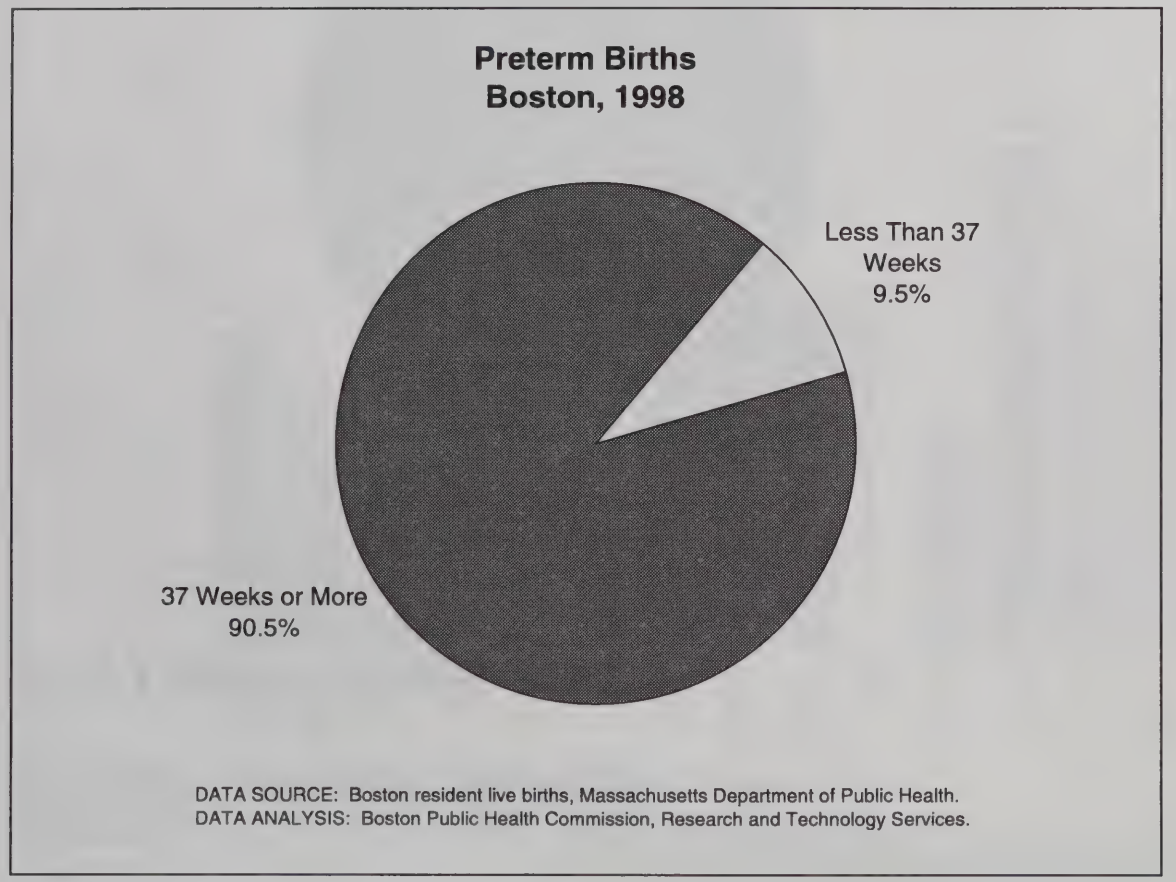
DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- Very low birthweight (VLBW) is defined as a weight of less than 1,500 grams, or 3.3 pounds, at delivery.
- In Boston in 1998, 124 births (1.6%) were VLBW.
- Very low birthweight among Boston births has changed little in recent years, fluctuating from 1.8% (in 1991) to 2.0% (in 1997).

INFANT CHARACTERISTICS

Preterm Birth

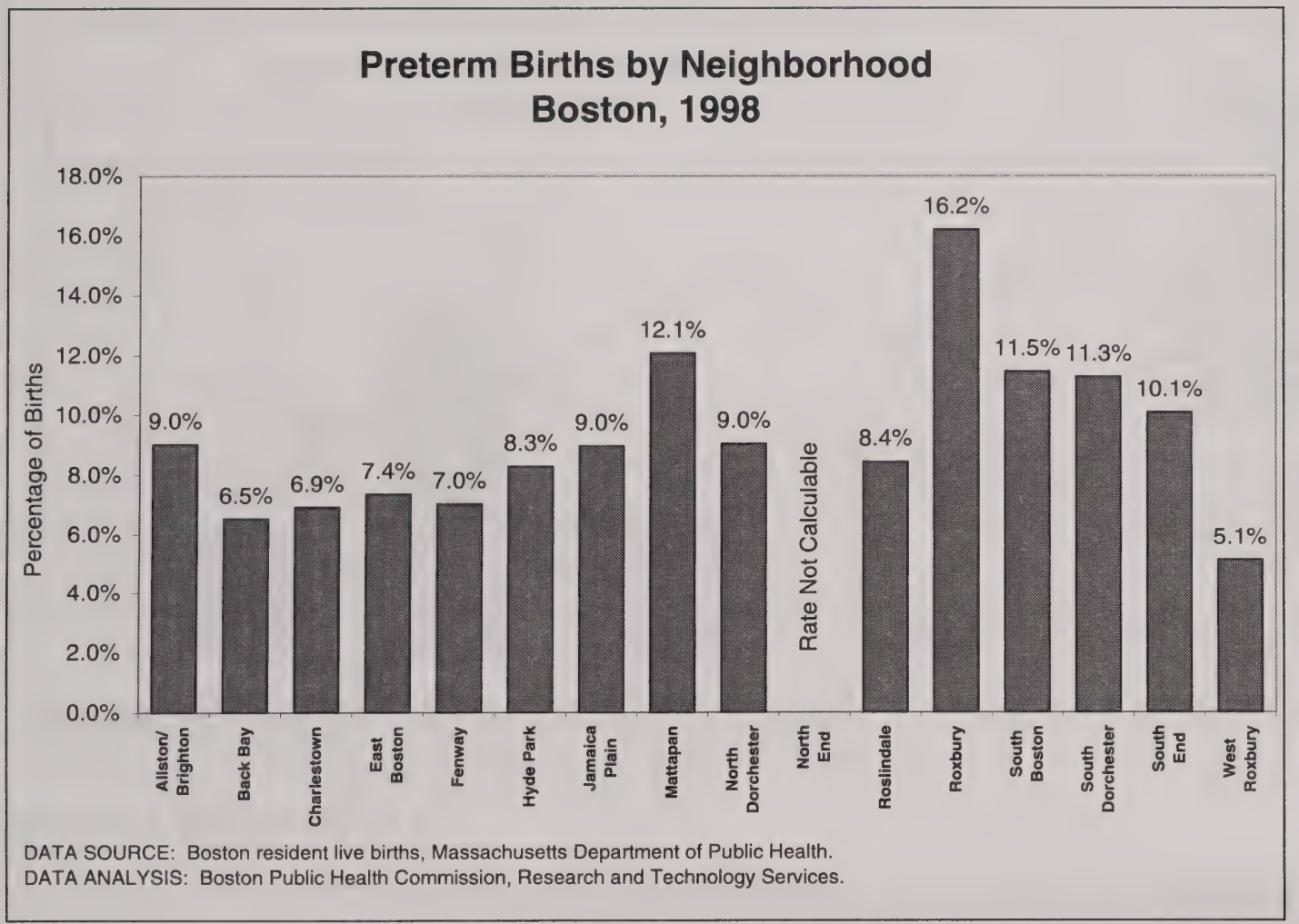
A preterm birth (PTB) is one that occurs at a gestational age of less than 37 completed weeks. Infants that have been born too early are at substantially increased risk of infant death, and the earlier they are born the higher their risk of dying before their first birthday. Preterm birth and low birthweight are highly correlated, with very similar race/ethnicity, age, prenatal care adequacy, and insurance status patterns.


Preterm Births
Boston, 1998
Less Than 37 Weeks 9.5%
37 Weeks or More 90.5%
DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- In Boston in 1998, 747 births (9.5%) were preterm.
- Between 1991 and 1998, preterm births reached a high of 9.8% in 1996, after which they declined. Overall, however, preterm births in Boston have increased by 11.8% since 1991.

INFANT CHARACTERISTICS

Preterm Birth

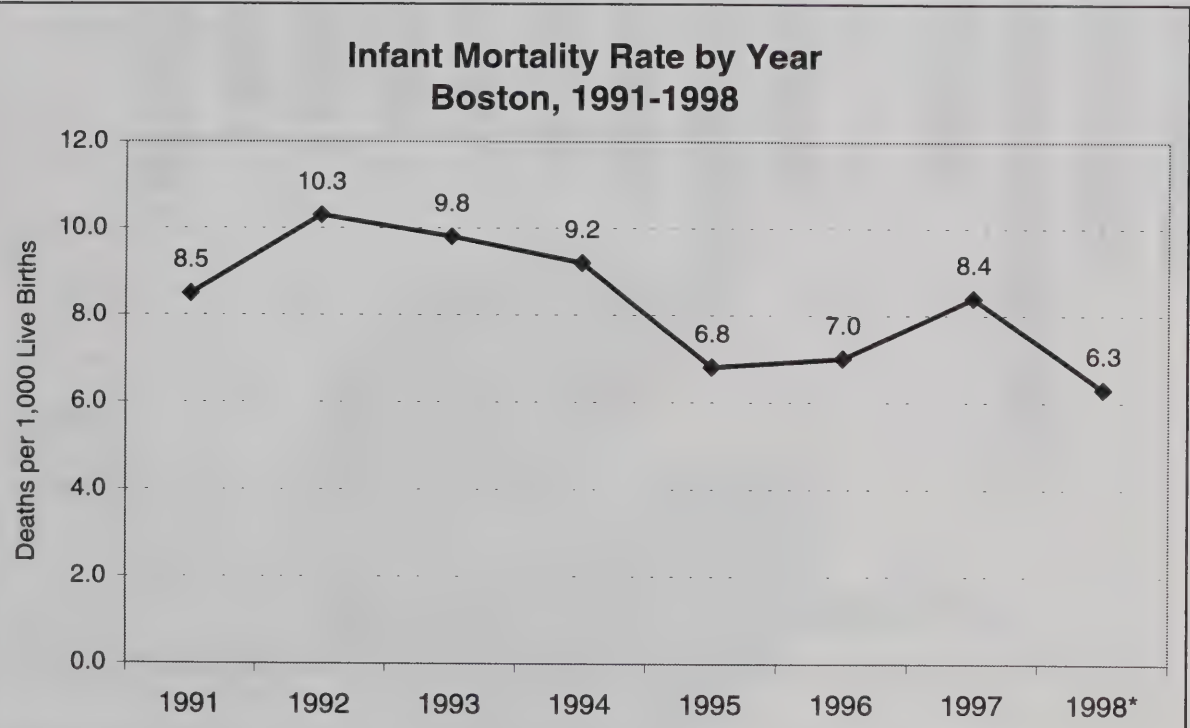


DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- Roxbury, with 128 preterm births (16.2% of its births), had the highest preterm birth rate of all Boston neighborhoods. Mattapan, South Boston, South Dorchester, and the South End also had high PTB rates. West Roxbury had the lowest PTB rate of all Boston neighborhoods.

INFANT MORTALITY

Trends

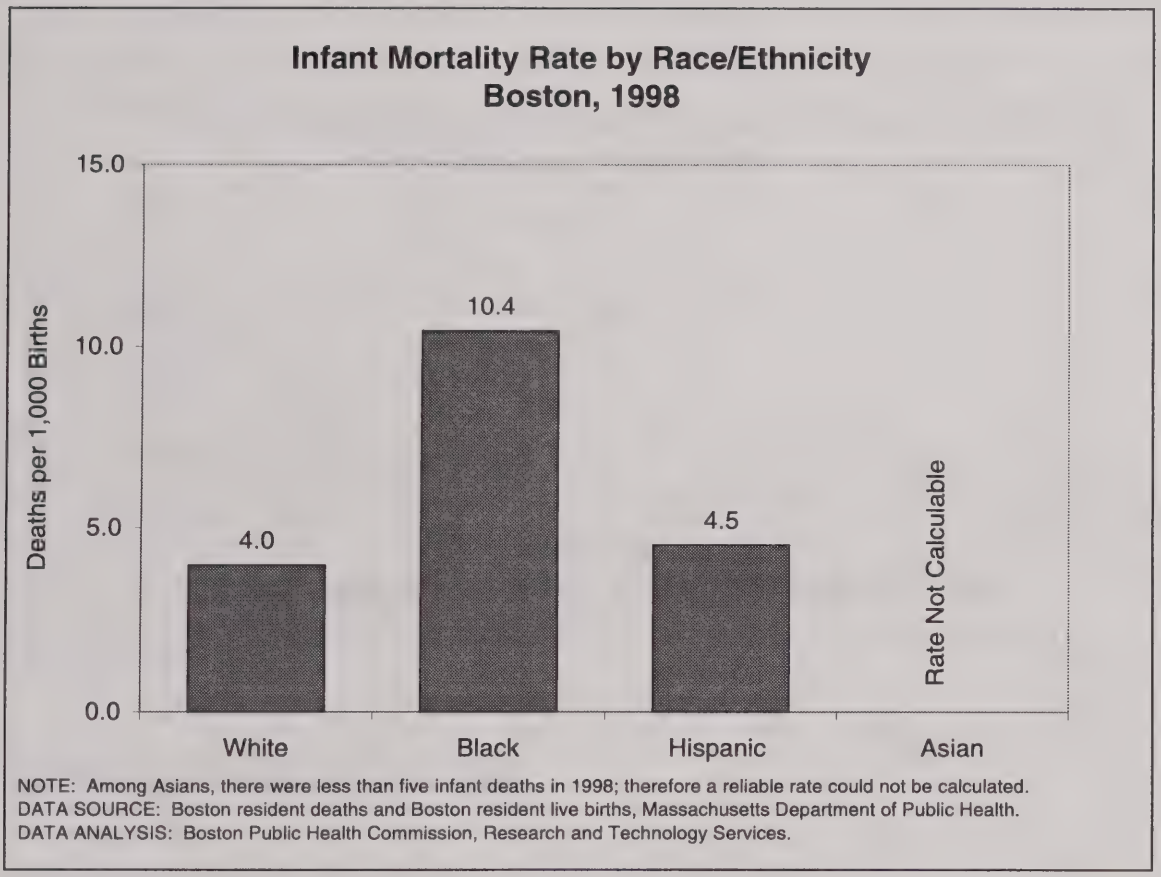


*In 1998 there were four infant deaths reported here that were reported too late to be included in the data files for state and federal reporting purposes.
DATA SOURCE: Boston resident live births and deaths, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- In 1998, there were 50 infant deaths in Boston, an infant mortality rate (IMR) of 6.3 deaths per 1,000 live births.
- Included in that total were four infant deaths that were reported late and about whom little information is available.
- The 1998 Boston IMR was 25.0% lower than the 1997 IMR of 8.4 and is the lowest rate in eight years.
- The highest IMR during the period 1991-1998 occurred in 1992 (10.3 infant deaths per 1,000 live births).

INFANT MORTALITY

Race/Ethnicity



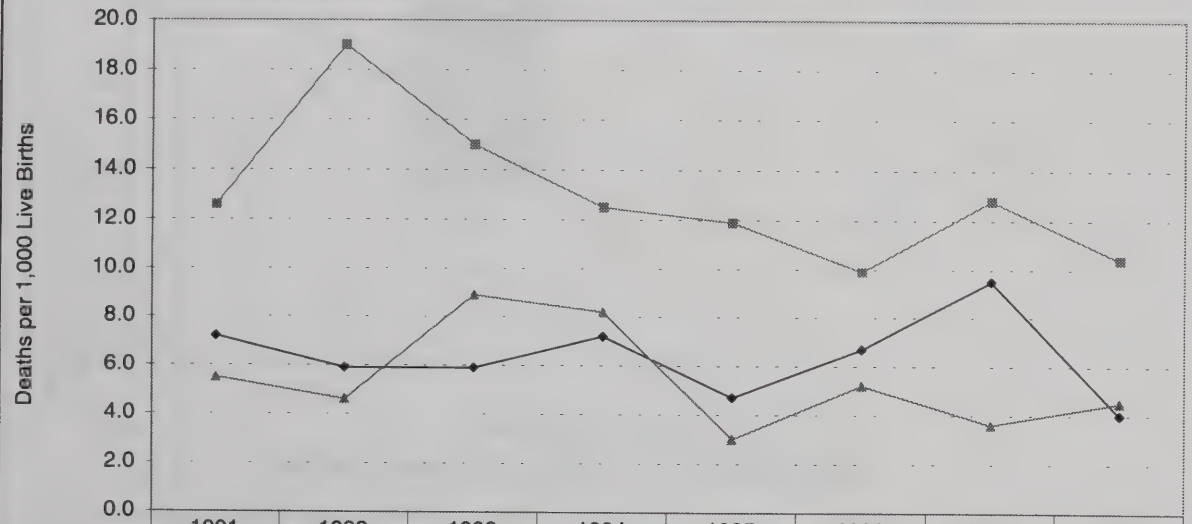
NOTE: Among Asians, there were less than five infant deaths in 1998; therefore a reliable rate could not be calculated.
DATA SOURCE: Boston resident deaths and Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- In 1998, the infant mortality rate (IMR) for Black infants was 2.6 times the White rate and 2.4 times the Hispanic rate. (There were fewer than five infant deaths among Asians; therefore, a rate could not be calculated, and the four infant deaths that were reported late were of unknown race/ethnicity.)
- The 1998 Black IMR was 79.3% higher than the Boston rate. The IMR for White infants was 31.0% lower than the Boston rate, and the IMR for Hispanic infants was 22.4% lower.

INFANT MORTALITY

Race/Ethnicity Trends

Infant Mortality Rate by Race/Ethnicity and Year
Boston, 1991-1998



	1991	1992	1993	1994	1995	1996	1997	1998
White	7.2	5.9	5.9	7.2	4.7	6.7	9.5	4.0
Black	12.6	19.0	15.0	12.5	11.9	9.9	12.8	10.4
Hispanic	5.5	4.6	8.9	8.2	3.0	5.2	3.6	4.5

NOTE: Among Asians, there were fewer than five infant deaths in each of the years; therefore, a reliable rate could not be calculated.
DATA SOURCE: Boston resident deaths and live births, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services

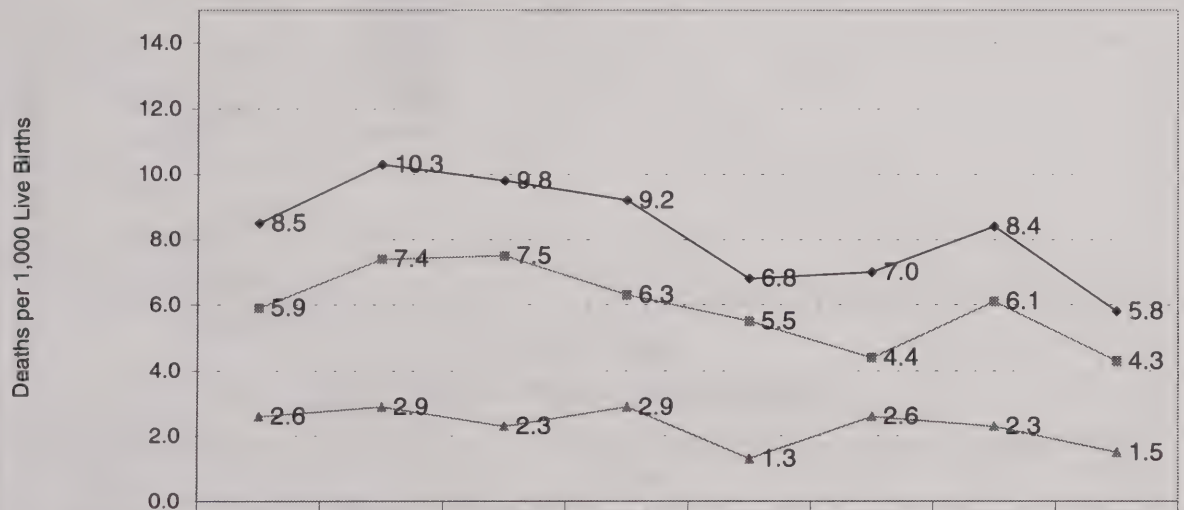
- For the entire period 1991-1998, Black infants had a higher IMR than White or Hispanic infants. Between 1991 and 1998, the Black IMR was highest in 1992 (19.0). In the years 1993 through 1996, the IMR for Blacks declined each year, but increased in 1997 and then declined again in 1998.
- The IMR for White infants declined by 44.4% between 1991 and 1998. The IMR for Hispanic infants fluctuated yearly, probably because of the low number of deaths and the relatively small size of that population group. During each of the years 1991-1998, Asians had fewer than five infant deaths; therefore, reliable rates could not be calculated.

INFANT MORTALITY

Age at Death

Infant deaths during the neonatal period occur among infants under 28 days of age. Infant deaths during the postneonatal period occur at 28 through 364 days of age.

Infant Mortality Rate by Age of Infant at Death by Year
Boston, 1991-1998



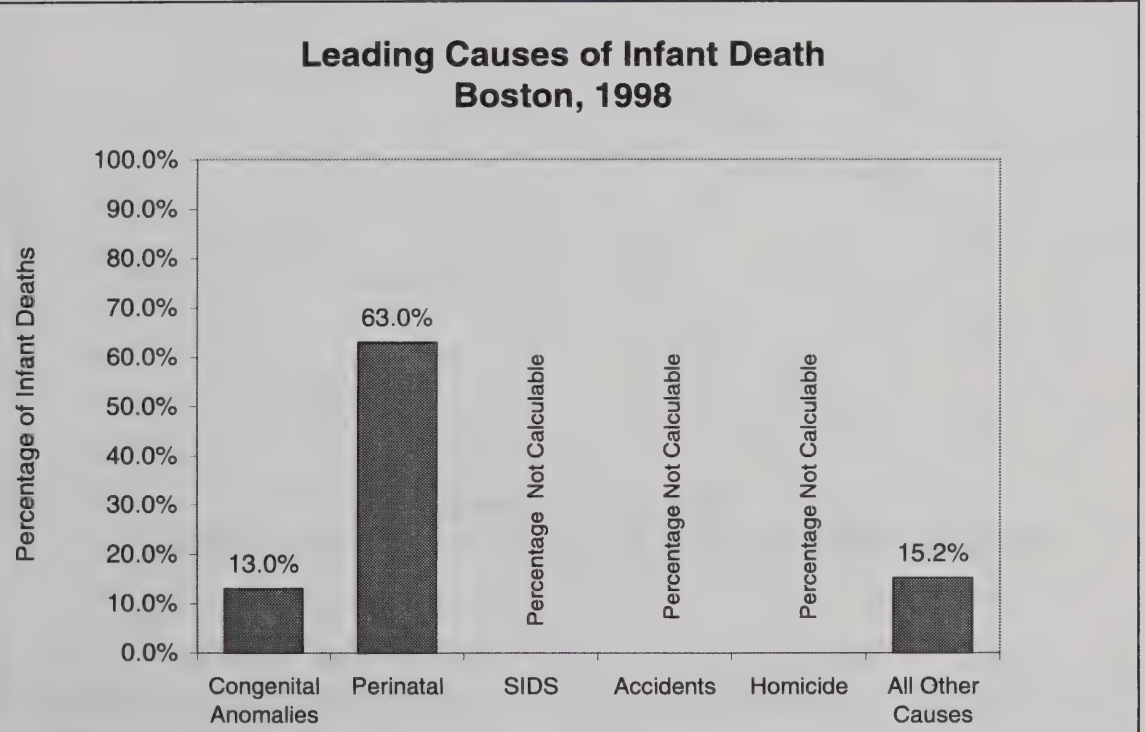
	1991	1992	1993	1994	1995	1996	1997	1998
Infant	8.5	10.3	9.8	9.2	6.8	7.0	8.4	5.8
Neonatal	5.9	7.4	7.5	6.3	5.5	4.4	6.1	4.3
Postneonatal	2.6	2.9	2.3	2.9	1.3	2.6	2.3	1.5

DATA SOURCE: Boston resident deaths and live births, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services

- Of the 46 infant deaths during 1998 for which age at death was known, slightly under three-fourths occurred during the neonatal period.
- Between 1997 and 1998, neonatal deaths declined by 29.5%, and postneonatal deaths declined by 34.8%.
- From 1991 to 1998, the neonatal mortality rate for Boston declined by 27.1%, from 5.9 deaths per 1,000 live births to 4.3 deaths per 1,000 live births. Also, in the same time period, the postneonatal mortality rate declined by 42.3%, from 2.6 infant deaths per 1,000 live births to 1.5 infant deaths per 1,000 live births.

INFANT MORTALITY

Causes of Infant Death



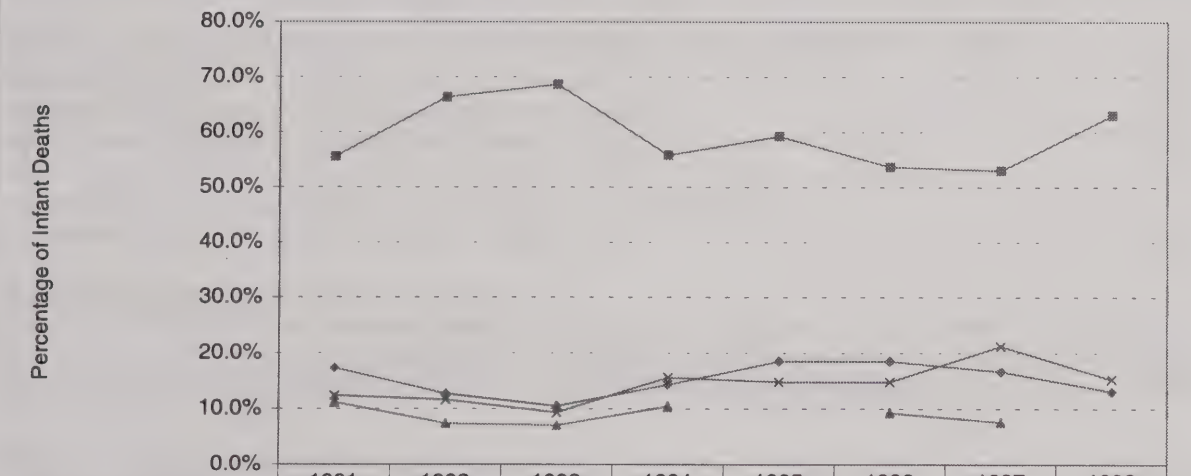
NOTE: Numbers of deaths due to SIDS, accidents, and homicides were too few to calculate a percentage.
DATA SOURCE: Boston resident deaths and Boston resident live births, Massachusetts Department of Public Health.
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services.

- The majority of Boston infant deaths are due to perinatal conditions, a category that includes conditions related to prematurity, accounting for 63.0% of deaths in 1998. Other causes were congenital anomalies (13.0%) and miscellaneous other causes (15.2%) such as heart, lung, and kidney diseases and deaths that are ill-defined or unknown. In 1998, there were fewer than five deaths due to SIDS and fewer than five due to all injuries.

INFANT MORTALITY

Trends of Causes of Infant Death

Leading Causes of Infant Death by Year
Boston, 1991-1998



	1991	1992	1993	1994	1995	1996	1997	1998
Congenital anomalies	17.3%	12.6%	10.5%	14.3%	18.5%	18.5%	16.7%	13.0%
Perinatal	55.6%	66.3%	68.6%	55.8%	59.3%	53.7%	53.0%	63.0%
SIDS	11.1%	7.4%	7.0%	10.4%	n<5	9.3%	7.6%	n<5
All other causes	12.3%	11.6%	9.3%	15.6%	14.8%	14.8%	21.2%	15.2%

NOTE: There were fewer than five deaths due to SIDS in 1995 and 1998, therefore, percentages could not be calculated.
DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission, Research and Technology Services

- Between 1991 and 1998, deaths due to congenital anomalies declined 24.8%, and deaths due to perinatal conditions increased 13.3%.
- In each of the years during 1991-1998, there were fewer than five deaths from all injuries. The number of SIDS deaths declined between 1991 and 1998. In 1991, there were 9 deaths due to SIDS, and in 1998 there were fewer than five.
- Between 1997 and 1998, infant deaths from perinatal conditions increased 18.9%. In 1997, of all infant deaths, 53.0% were due to perinatal conditions, while in 1998 this increased to 63.0%. Infant deaths due to congenital anomalies decreased from 16.7% of infant deaths in 1997 to 13.0% of infant deaths in 1998. In 1997, deaths from SIDS were 7.6% of infant deaths, and this decreased to fewer than five deaths in 1998.
- Between 1991 and 1998, infant deaths from perinatal conditions increased 13.3%, congenital anomalies declined 24.9%, and miscellaneous other causes increased 23.6%.

TECHNICAL NOTES

Technical Notes provide explanations of many of the terms, concepts, and sources used in *Boston Natality 2000: A Report on the Health of Mothers and Infants.* Many of these subjects are also covered in the glossary. Readers can call Research and Technology Services at (617) 534-4757 for more information on any of the subjects addressed here or with other questions about the report.

Rates

Two types of rates have been included in *Boston Natality 2000: A Report on the Health of Mothers and Infants.* They are *Age-Specific Rates (ASR)* and *Infant Mortality Rates (IMR).*

Age-Specific Rates (ASRs) take into account the size and age distribution of the population. They enable the reader to compare different groups without being concerned that differences in health status of those groups are due to differences in the size of the groups or in distribution of ages. An ASR is calculated by dividing the number of events among people in an age group by the number of people in that age group. ASRs for birth-related rates are calculated for every 1,000 women in any age group. In this report, race/ethnicity specific ASRs are also presented.

> *Example*: The Boston ASR for births in 1998 was higher in women ages 25-34 (65.0 births to women ages 25-34 per 1,000 women ages 25-34) than among women ages 15-19 (38.2 births to women ages 15-19 per 1,000 women ages 15-19).

Infant Mortality Rates (IMRs) are used as a measure of infant deaths within a population. However, unlike mortality rates for adults or children one year of age and over, which are usually calculated for every 100,000 population, IMRs are calculated for every 1,000 live births.

Time Periods and Small Numbers of Health-Related Events

This report contains data drawn from the period 1991 through 1998. In general, Boston-specific data are presented for the eight-year time span, either year by year or in aggregated form for the spans 1991-1998 or for 1998 only.

Determination of the time period to be used depends largely on the availability and adequacy of the data. In analyzing subgroups within the Boston population there must be a sufficient number of events, such as deaths or births, within the time period to provide reliable rates. While what is defined as a "small" number can vary, the BPHC Research and Technology Services adheres to the widespread practice of not calculating rates for fewer than five deaths, births, or other health events.

Population

Health status reports like this one use population statistics for analyzing health data. These population statistics are drawn from one of two sources, or from a combination of these two sources. The first is the census of the population taken every ten years by the federal government, literally a count of all people living in the United States, and the second is estimates of the population made by the US Census Bureau between censuses.

Each source has its own advantages, and there are distinct reasons for choosing each one. The census provides the best available actual count of the population and is usually considered the population standard. An important strength of the census is that it presents data to the level of small areas called census tracts, each of which has only a few thousand residents. These census tracts can be combined to produce neighborhood-level analyses. Recognizing this benefit, the US census codes all vital statistics (birth and death) data with census tracts.

However, while the 1990 census is the best estimate of the population for the early years included in this report, with each passing year it becomes more remote from the population it is being used to represent and therefore less useful. Changes in the population in the years following the census cannot be taken into account when using the census data.

Population projections of the population, which are often used to compensate for this problem, are made by the Census Bureau using sophisticated statistical methods. They are designed to estimate the changes which are occurring in the population between the years of the actual censuses. And yet, for the purposes of this report, estimates of population changes between census years have significant drawbacks. They do not account for changes in the racial composition of a community, and they do not permit neighborhood-level analyses. Perhaps most importantly, even small errors in the accuracy of projections for neighborhoods or other population subgroups can result in large distortions in their rates.

Therefore, this report is based largely on data from the 1990 census. Readers should note that the Massachusetts Department of Public Health uses population estimates from Massachusetts Institute for Social and Economic Research (MISER) for reports on data for the years after 1990, and the federal government frequently uses population estimates in its reports, so the rates in this report may not be comparable to those published by MDPH or the federal government.

NOTE: To provide data on people of Hispanic ethnicity, who may be of any race, this report uses the "Modified Age-Race-Sex File," produced from census data, which categorizes Hispanics separately. This avoids the double-counting which would result if Hispanics were included in the White and Black racial categories as well as in the Hispanic category.

Neighborhoods

Census tracts are so small that there are often not a sufficient number of health-related events—such as births or deaths—to calculate reliable rates, particularly for individual years. Therefore, census tracts are combined into neighborhoods for the presentation of the natality data.

Some of Boston's neighborhoods are clearly defined. West Roxbury, for example, is bordered by the West Roxbury Parkway, the Stony Brook Reservation, and Dedham. The boundaries of most neighborhoods are less distinct for historical, political, or geographic reasons.

A goal for this report was to select geographic areas that were small enough to show the variation of health patterns throughout the city while being large enough to be statistically reliable. Neighborhood definitions were discussed with residents, health care providers, and advocates throughout Boston. The definitions that are in this report are the result of that consultative process and are the same definitions used in *The Health of Boston* and other BPHC reports.

Racial and Ethnic Designations

National, state, and local health data sources usually make available data for only a few large racial and ethnic groups, and the classifications they use are not always consistent with other sources; caution should be used in comparing racial and ethnic data from different sources. The categories used in *Natality 2000: A Report on the Health of Mothers*

and Infants are non-Hispanic White ("White"), non-Hispanic Black ("Black"), Asian/Pacific Islander ("Asian"), and Hispanic. These racial and ethnic designations are derived from the source of the data, including the US census, birth and death data from the Massachusetts Department of Public Health, and other sources. All data used in this report except those taken from death certificates are self-reported.

In considering the racial or ethnic designations used in this report for Boston-specific data, several things should be kept in mind: (1) The concept of race has different meanings in different cultures. (2) Race is not a biological but a social phenomenon. (3) The meanings of racial designations—White, Black, Asian/Pacific Islander—are subject to historical, cultural, and political forces. (4) Finally, racial designations are notably inaccurate in describing what they are called upon to describe. The term Black, for example, includes a variety of people who would describe themselves as African-American, African, Caribbean, or Haitian.

In the charts which present data by race and ethnicity or in the text which discusses health problems among racial and ethnic populations, it should be kept in mind that, as the CDC has said, "race and ethnicity are not risk factors [for disease]—they are markers used to better understand risk factors." Race is often a proxy for such factors as socioeconomic status, inadequate access to health care, and racial discrimination. Information on race and ethnicity is included in this report because it can assist public health efforts to recognize disparities between groups for a variety of health outcomes.

Boston-specific data in this report are generally presented for each racial and ethnic subgroup when data are available and numbers are large enough to allow calculation of percentages or reliable rates. Many charts may present data only for the largest racial and ethnic groups, such as non-Hispanic Whites, non-Hispanic Blacks, and Hispanics. Few sources provide data in large enough numbers for smaller groups such as the many ethnicities included in the category "Asian."

The collection of racial and ethnic data varies with the data source. Some sources may rely on observation and others on self-reporting. Race and ethnicity on a death certificates are reported by the funeral director based on information provided by a relative or friend if available, while birth certificates may combine information reported by the mother, father, or other relatives.

Since Hispanics can be of any race, the federal and state data sources often report data for Blacks and Whites, including Hispanics in those categories. However, the Boston-specific data in the charts and discussion provided in *Boston Natality 2000: A Report on the Health of Mothers and Infants* reports data for four separate groups—Hispanics, non-Hispanic Blacks, non-Hispanic Whites, and Asians.

GLOSSARY

Accidents and Adverse Effects: Effects that include motor-vehicle-related injuries but that exclude homicides and suicides. ICD-9 CM codes include E800.0-E949.9.

Adolescent Births: Births to women who are between 10 and 19 years of age.

African-American: All persons identified as being born in the US who have ancestors of African descent. All racial or ethnic designations from all sources except birth and death certificates are self-reported.

Age-Specific Birth Rate: The number of births per year in a given age group per 1,000 women in that age group.

Asian: All persons identified as Asian or Pacific Islander (e.g., Chinese, Japanese, Hawaiians, Cambodians, Vietnamese, Asian Indians, Filipinos) who do not identify themselves as Hispanic. All racial or ethnic designations from all sources except birth and death certificates are self-reported.

Birth: All births reported in *Boston Natality 2000: A Report on the Health of Mothers and Infants* are live births. **See Live Births**.

Birth Rate: The number of live births per year, per 1,000 persons.

Birthweight: The weight of an infant at the time of delivery. It may be recorded in either grams or pounds/ounces. If recorded in pounds/ounces, it is converted to grams for use in this report based on the following formula: 1 pound = 453.6 grams; 1,000 grams = 2 pounds and 3 ounces.

Black: All persons identified as Black (e.g., African Americans, Haitians, West Indians) who do not identify themselves as Hispanic. (See Non-Hispanic Black.) All racial and ethnic designations from all sources except birth and death certificates are self-reported.

Cesarean Section: The extraction of the fetus by an incision through the abdomen into the uterus. Often this procedure is done as a result of pregnancy-related complication such as the fetus being too large for the pelvis. A breech presentation of the fetus is often handled by cesarean section.

Congenital Anomaly: A structural abnormality present at birth; ICD-9-CM codes 740.0-759.9.

Crude Birth Rate: The number of live births per year, per 1,000 persons.

Demographics: The statistical study of characteristics of human populations and of population distributions such as age, sex, and race/ethnicity.

Embryo: The product of conception from implantation through the eighth week of development, after which it is referred to as a fetus.

Fertility Treatment: A variety of procedures and/or medications used with the purpose of conception.

Fertility: The capacity to become pregnant.

Fetus: The product of conception from the end of the eighth week of development to the moment of birth.

Forceps: An instrument used to grasp the fetal head as an aid in delivery; the delivery of an infant using such an instrument.

Gestation: The period of growth in the uterus during pregnancy.

Gestational Age: Length of pregnancy (in weeks) calculated as the number of weeks following the woman's last menstrual period.

Hispanic: Includes people of any race (Asian, Black, White, or Other) who consider themselves Hispanic or Latino, such as Puerto Rican, Mexican, Cuban, Spanish, and Dominican. All racial or ethnic designations from all sources except birth and death certificates are self-reported.

Homicide: A death intentionally caused by a person other than the deceased. ICD-9CM codes E960.0-E969.9.

IMR: See **Infant Mortality Rate**.

Infant Mortality Rate (IMR): The number of deaths per 1,000 live births among infants less than one year old.

LBW: See **Low Birthweight**.

Live Birth: Any infant who breathes or shows any other evidence of life (such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles) after separation from the mother's uterus, regardless of the duration of gestation.

Low Birthweight (LBW): Weight of an infant at time of delivery of less than 2,500 grams (5.5 pounds).

Miscarriage: The spontaneous expulsion of embryo or fetus before the middle of the second trimester.

Morbidity: Illness, disease, or injury.

Mortality: The relative frequency of deaths in a specific time period; death rate.

Multiple Births: The birth of two or more offspring from the same pregnancy.

Neighborhood: One of 16 distinct geographical areas in Boston.

Neonatal Deaths: Deaths of infants under 28 days old.

Neonatal Mortality Rate: The number of neonatal deaths per 1,000 live births.

Non-Hispanic Black: All persons identified as Black (e.g., African Americans, Haitians, West Indians) and not identified as Hispanic. All racial or ethnic designations from all sources except death certificates are self-reported.

Non-Hispanic White: All persons identified as White and not Hispanic. All racial or ethnic designations from all sources except death certificates are self-reported.

Other Race: People identified as a race other than Black, White, or Asian (e.g., American Indian/Native American, Aleut, Eskimo) and not Hispanic. All racial or ethnic designations from all sources except death certificates are self-reported.

Parity: The number of previous live births to a woman plus the current birth.

Perinatal: Occurring during or pertaining to the periods before, during, or after the time of birth (i.e., before delivery from the 28th week of gestation through the first seven days after delivery).

Plurality: The number of births to a woman from the same pregnancy; singleton is the birth of one infant, twins is the birth of two infants, triplets is the birth of three infants, etc.

Postneonatal Deaths: The number of infants dying at 28 through 364 days of age.

Postneonatal Mortality Rate: The number of postneonatal deaths per 1,000 live births.

Pregnancy: The condition of carrying a developing embryo or fetus in the uterus. DRG 370-384.

Prenatal Care (PNC): Medical care specifically associated with pregnancy, the goal of which is a healthy birth process and outcome for both the fetus and the mother. Prenatal care is classified into five categories (adequate, intermediate, inadequate, no prenatal care, and unknown) based upon the trimester in which prenatal care began and the number of prenatal visits. One of the most common measures of prenatal care is the Adequacy of Prenatal Care Scale (based on the Kessner Index). The general classification scheme is as follows:

Category	Trimester Care Began	Number of Visits
Adequate	1	9 or more
Intermediate	1	5-8
	2	5 or more
Inadequate	1	1-4
	2	1-4
	3	1 or more
No Prenatal Care	none or unknown	none or unknown

In 1996, Massachusetts implemented a major revision to the birth certificate form, which is described in the Technical Forward to the Massachusetts Department of Public Health, *Advance Data: Births 1996*. The following explanation of the changes and how prenatal care data may be affected is based on the Technical Foreword to that report:

> The 1996 revised birth certificate now collects data for calculation of the Kessner Adequacy Index in a different manner than in previous years covered by PHC reports. From 1986 to 1995, data elements for use in calculating the adequacy index were as follows: month of pregnancy prenatal care began (coded as 1-9) and number of prenatal visits, adjusted by birthweight for premature infants. Hospitals were required to calculate the month of pregnancy from data available in medical and prenatal

records. In 1996, the data elements for use in calculating the adequacy index were: month of pregnancy prenatal care began (1-9) and the number of prenatal visits, adjusted by clinical estimate of gestation for premature infants. But, rather than have individual hospitals make determinations of month of pregnancy, the new birth certificate asks hospitals to report the precise date of first prenatal care visit. This dramatically increases the consistency of data collection across facilities and yields a more standard calculation of month of prenatal care began. Rather unexpectedly, month of pregnancy prenatal care began showed a significant decline in first trimester visits when date of first visit determined the month as opposed to hospital reporting of month. When comparing the adequacy index for 1995 and 1996, there is almost universal decline in state and hospital adequacy rates. This is unlikely to reflect a significant actual decline, but rather a data adjustment due to more accurate data collection in 1996.

Preterm Birth: Birth before 37 completed weeks gestation.

Private Insurance: Health insurance not paid for by public funds. Types of private insurance include Health Maintenance Organizations (HMOs), Blue Cross/Blue Shield, and commercial insurers.

Public Insurance: Health insurance paid for by public funds. This includes Medicaid, the state Healthy Start program, other types of governmental programs, and the Uncompensated Care Fund.

Race, Other: See **Other Race**

SIDS: Sudden Infant Death Syndrome. ICD-9-CM code 798.0.

Singleton: A pregnancy consisting of a single infant, such an infant.

Socioeconomics: Social and economic characteristics of a population, such as education and poverty levels.

Sudden Infant Death Syndrome (SIDS): The unexpected and unexplained death of an apparently well infant, often occurring during sleep. SIDS is the most common cause of infant death between the second week and first year of life and occurs most frequently in the third and fourth months of life, in premature infants, in males, and in infants living in poverty.

Term: Birth at a gestational age of 37 completed weeks or greater.

Trimester: A period of three months.
- **First trimester:** The first three months of pregnancy.
- **Second trimester:** The second and middle three months of pregnancy (four to six months).
- **Third trimester:** The third and final three months of pregnancy (seven to nine months).

Triplet: One of three infants from the same pregnancy.

Twin: One of two infants from the same pregnancy.

United States: For the purposes of this report, the US comprises the fifty states only; US territories are considered separately.

Vacuum Extraction: The delivery of an infant by the use of an instrument designed to apply suction to the head of the fetus.

Vaginal Birth: The delivery of an infant through the birth canal.

Very Low Birthweight (VLBW): Weight of an infant at time of delivery of less than 1,500 grams (3.3 pounds).

Weight gain: The total weight in pounds that a woman gains during her pregnancy. The current general guidelines recommend that a woman of normal weight and average height gain no less than 15 pounds and no more than 40 pounds.

White: All persons identified as White who do not identify themselves as Hispanic. (See non-Hispanic White.) All racial or ethnic designations from all sources except death certificates are self-reported.